TAMPERE UNIVERSITY OF TECHNOLOGY
Degree Programme in Information and Knowledge Management

OONA PIRINEN

WEAK SIGNAL BASED FORESIGHT SERVICE

Master of Science Thesis

Prof. Mika Hannula has been appointed as the examiner at the Council Meeting of the Faculty of Business and Technology Management on November 4th, 2009.

ABSTRACT

TAMPERE UNIVERSITY OF TECHNOLOGY
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The purpose of this thesis was to investigate the utilization of foresight information in an organization, especially to support strategic planning. Finpro has recently launched a foresight service for Finnish companies. The service bases on collecting weak signals globally, analyzing them, and using the results to anticipate future challenges and opportunities. The objectives of this study are to find out how Finpro should organize its foresight service in order to satisfy the needs of all its stakeholders, which are Finnish economy, individual companies, and Finpro members, and how it can differentiate from other players of the foresight field in Finland.

In today´s rapidly changing circumstances, it is ever more important to react quickly and seize on opportunities on time. It is difficult to plan and implement company´s strategy in this hectic and ever-changing business environment. Weak signals are currently apparent, vague issues, which can hint on future trends, changes, and emergent phenomena. The problem is that weak signals are not usually correctly understood in their time of appearance, but they can be shown afterwards. By monitoring systematically the business environment, signals can be collected, analyzed, and used to support strategic planning of a company. This case study uses action-oriented research methodology and is divided into theoretical and empirical parts. The main outcome of the empirical part is the expectations of different Finpro stakeholders about foresight services, and a suitable business model for implementing the ideas in practice. The study is based on a questionnaire sent to Finpro stakeholders. In addition, five interviews were conducted to get a deeper view. Based on the answers and the comparative study of the foresight field was concluded how Finpro should differentiate from the other actors in the field.

The study shows a clear interest and need for foresight services. Finnish companies monitor their environment and utilize the results in their actions, though needing analyzed information and support of using it in their strategic planning. Both free and general trend information, as well as fee-paying tailored analysis and foresight services was seen interesting. Finpro´s services are unique by offering comprehensive foresight information and profound insight to support companies´ strategy work. Finpro´s foresight work enriches the whole innovation system in Finland.

TIIVISTELMÄ

TAMPEREEN TEKNILLINEN YLIOPISTO
Tietojohtamisen koulutusohjelma

PIRINEN, OONA: Heikkojen signaalien keräämiseen perustuva ennakointipalvelu
Diplomityö, 121 sivua, 5 liitettä (31 sivua)
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Tämän diplomityön tarkoitus oli tutkia ennakointitiedon käyttämistä organisaatiossa erityisesti strategisen suunnittelun tukena. Finpro on hiljattain lanseerannut ennakointipalvelun suomalaisille yrityksille. Palvelu perustuu heikkojen signaalien keräämiseen maailmalta, niiden analysointiin, ja tuloksien käyttämiseen tulevaisuuden haasteiden ja mahdollisuuksien ennakoinnissa. Tämän tutkimuksen tavoitteena on selvittää, miten Finpron pitäisi organisoida ennakointipalvelunsa tyydyttääkseen kaikkien sidosryhmiensä tarpeet, joita ovat Suomen yhteiskunta, yksittäiset yritykset ja Finpron jäsenet, ja kuinka Finpro erottautuu muista ennakointitoimijoista Suomessa.

Nykypäivän alati muuttuvissa olosuhteissa on yhä tärkeämpää reagoida nopeasti ja tarttua tilaisuuksiin ajoissa. Yritysstrategia on vaikea suunnitella ja implementoida hektisessä ja jatkuvassa muutostilassa olevassa liiketoimintaympäristössä. Heikot signaalit ovat tällä hetkellä näkyvillä olevia epämääräisiä asioita, jotka voivat vihjata tulevista trendeistä, muutoksista ja nousevista ilmiöistä. Ongelmana on, että heikkoja signaaleja ei usein ymmärretä niiden esiintymisaikana, mutta niitä voidaan tulkita jälkiviisaasti. Monitoroimalla systemaattisesti liiketoimintaympäristöä signaaleja voidaan kerätä, analysoida ja käyttää strategisessa suunnittelussa. Tämä tutkimus perustuu toiminta-analyyttiseen tutkimusotteeseen ja on jaettu teoreettiseen ja empiiriseen osaan. Empiirisen osan tärkein lopputulos on eri sidosryhmien odotukset ennakointipalveluista sekä sopiva liiketoimintamalli niille. Tutkimus perustuu Finpron sidosryhmille lähetettyyn kyselyyn. Lisäksi tehtiin viisi haastattelua syvempää näkemystä varten. Vastausten ja vertailututkimuksen perusteella pääteltiin, miten Finpro erottautuu muista ennakointialan toimijoista.

Tutkimus osoitti selkeän kiinnostuksen ja tarpeen ennakointipalveluille. Suomalaisyritykset monitoroivat ympäristöään ja käyttävät tuloksia toiminnassaan, mutta tarvitsevat analysoitua tietoa ja tukea strategiatyössä. Sekä ilmainen ja yleinen trenditieto että maksulliset räätälöidyt analyysit ja ennakointipalvelut koettiin kiinnostavina. Finpron palvelutarjonta on ainutlaatuinen tarjotessaan sekä kattavaa ennakointitietoa että syvällistä näkemystä yritysten strategiatyön tueksi. Finpron ennakointityö rikastuttaa koko Suomen innovaatiosysteemiä.

PREFACE

This thesis accomplishes the long and rocky road from an eager freshman student to a talented Master of Science, a process full of excitement, important experiences, and many challenges. I have been lucky to have a very interesting topic for my thesis, and intelligent people around me supporting this work.

My first thanks go to Pekka Tolonen, Head of Finpro Spain, who was best-imaginable boss during my trainee period in Spain, who had trust in me, and invented the topic for my thesis.

My greatest thanks belong to my supervisor, Markku Vantunen, Vice President and Head of Finpro Foresight Process and Offering Portfolio. His wise advice, true enthusiasm towards the theme, and an excellent sense of humor has made this process a pleasing, learning and fun experience.

Markus Ranne and other members of the foresight team in Finpro have been an inspiring force to accomplish this thesis. In addition, the advice of Elina Hiltunen has been of great value. All the interviewees deserve to be acknowledged as well.

I want to thank my examiner, Professor Mika Hannula, whose great expertise in the field shows a good example for every student. I also thank Professor Hannu Kärkkäinen for the examination.

My deepest thanks are dedicated to my family. My father Pertti has helped me with everything during my studies and without him I wouldn´t graduate as Master of Science. My mother Liisa has always supported and encouraged me to believe in what I do. My sister Kaisa has been my personal counselor of studies and is my best friend forever. Her children are the greatest source of joy in the world.

I also want to thank deeply all my dear friends and my loved one. You people make me what I am.

"It's not the strongest of the species who survive, nor the most intelligent, but the ones most responsive to change." (Charles Darwin)

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TERMS

Business Intelligence (BI) is a systematic and organized process by which organizations acquire, analyze and disseminate business information from external and internal sources to support faster and better decision-making.

Competitive Intelligence (CI) is a value-added process that utilizes competitive information and analyses to gain competitive advantage and develop knowledge about the competitive environment: customers, competitors, suppliers, strategic alliances, future opportunities and threats.

Forecasting is predicting the development of a known trend or issue.

Foresight is about how to work with the present to prepare wisely for the forthcoming; an intention to capture and seize on emergent opportunities early enough; to recognize current issues from which there are no historical data available, by monitoring weak signals in the environment.

Knowledge intensive business services (KIBS) are highly information and knowledge based services which are offered to other companies.

Megatrend is a phenomenon or an entity of many phenomena, which has a common direction identified by already actualized development lines that are thought to continue parallel in the future.

Scenario is a story about different possibilities of the future including goals and values, and it evaluates alternatives and their desirability. It often has a description of available possible choices and their anticipated outcomes, as well as implicit or explicit recommendations.

Trend is an entity composed of many weak and vague signals. It is a long-term change that indicate conditions in the future, which may affect in innumerable ways even if unaware of them.

Weak signal	is currently existing, seemingly insignificant small issue, which could provide hints of the possible events and trends in the future if understood correctly.
Wild card	is a discontinuity, disruptive event, surprise, or unprecedented development, a phenomenon with low probability of occurrence but potentially high impacts and strategic consequences if actualizes.

1. INTRODUCTION

This Master of Science thesis is made for Faculty of Business and Technology Management of Tampere University of Technology as an assignment from Finpro ry. Within Finpro there has raised a need to offer futures-oriented, very current trend related information and services for Finnish companies and economy. The need came from the fact that strategic business planning is difficult based on information about history alone. Therefore, Finpro developed a foresight process, which had its first descriptions in the autumn 2008, and now is raising its head towards the consciousness of the audience; the process is outlined and business model planned to serve the needs of organizations willing to use foresight information in support of their business.

1.1. Background

The global business environment is all along more turbulent, complex and rapidly changing. Finnish companies need to face the global requirements, be flexible and succeed in these unstable circumstances. To gain competitive advantage it is increasingly important to react rapidly to the shifts in the environment, and choose the right methods to respond to them. The key issue is to be able to prepare for the forthcoming by anticipating what might come, and which effects it may have. However, you cannot forecast the future; the changes in the business environment are difficult to foresee based on history information alone, and so it is difficult to be prepared for those. It is argued, though, that there have been in the air some hinting indicators of the changes that have led to the current situation. At least afterwards, with hindsight, it is possible to point out the signs that have reflected earlier the realization of the present. These signs are called weak signals, and they can have an important meaning in forming the future trends, even though they might seem useless and insignificant in the time of their early appearance. Identifying and capturing these weak signals, and utilizing those with every-day business or with the strategic planning would help companies to gain significant competitive advantage of being an early bird. The challenge is in exploiting weak signals, because their meaning is often understood only when it is already obvious to all.

Finpro is a private-public organization with a national mission to help Finnish small and medium sized companies to internationalize. It has a global expert network of consultants and market analysts in more than 40 countries, and thus it has a privilege to bring knowledge of the world phenomena to Finnish companies and society. Finpro has found out that there is a great interest in anticipatory information from abroad about possible future trends. Finnish companies have had challenges in capturing to the

possibilities and requirements caused by changes in the business environment. Therefore, Finpro has implemented a foresight process, which aims at helping to foresee, and thus prepare wisely for the possible changes and trends in the business environment. The process bases on analyzing signals observed and captured globally by Finpro employees, and it utilizes interactive wiki-based information collecting, sharing and analyzing tool called Trendwiki. With the foresight work, Finpro can help Finnish companies to take an advantage of prospective changes, to understand current global phenomena, to capture business opportunities, and to challenge their assumptions of the business in order to benefit their strategic decision-making.

1.2. Purpose, objectives and limits of the study

The purpose of this study is to investigate the monitoring of the business environment, collecting weak signals, and using that information in support of strategic business planning, i.e. investigate the foresight process, which bases on collecting weak signals from the environment. The objectives are to find out if there is an interest and need for foresight services, assess the case company´s foresight service offering considering its different stakeholders´ needs, outline a suitable business model for the services, and investigate if the case company differentiates from other foresight players in Finland.

As part of its national mission, Finpro has an obligation to provide some free services to the Finnish society. Finpro's members form a backbone for its existence and expect added value in return for their membership fee. Finpro's consulting services are charged to a client. So, the research problem is: in this context, how should Finpro organize its foresight service in order to satisfy the needs of all stakeholders and to differentiate from other foresight players? Sub-questions are followings:

Q1: What expectations different stakeholders have about foresight services?

Q2: What should be the business model for foresight services?

Q3: How Finpro differentiates with its services from other foresight players?

To clarify the usage of different terms, this study uses only the term weak signal or signal, even though it could also be called as a sign, weak sign, future signal et cetera. This study does not focus on technical details, so only the general characteristics of the information system used to accomplish foresight process are introduced. So, the technical features and the usability of the program are left beyond the examination. The investigation in general is made from the perspective of the service provider, Finpro.

1.3. Research strategy and methodology

The research includes three stages. The first step is a literature review of the topic. The second step is gathering data from different stakeholder representatives by web questionnaire and short interviews. The third is to analyze the results, and the current and wanted state of Finpro foresight activities, and comparing Finpro with other actors of the foresight field in Finland. The objectives of the study are to find out different stakeholders´ expectations and needs for foresight services, and outline appropriate business model for these services. The aim is also to map Finpro´s most important competitors in the foresight field, and consider how to differentiate from those. Based on the investigations, the purpose is to form a proposal for a foresight strategy with which Finpro could best serve all its stakeholders, and differentiate from other actors in the field.

Generally, the research can be classified as quantitative or qualitative; they complement each other but differ in their nature. Quantitative research bases on collecting quantitative, numeric material and measuring it, while qualitative research collects material in natural, real situations with methods that reveal the insights of the examinees. (Hirsjärvi et al. 2000, pp. 129, 155.) The nature of the results of this research is both qualitative and quantitative. The theoretical part of the study bases on literature research and is thus qualitative. The data for the empirical part, gathered from the stakeholders, is both qualitative and quantitative, because the results from the questionnaire are mainly quantitative, but open comment fields and interviews provide qualitative data for the research. The quantitative results will be presented as charts with written explanations. After that the results overall will be analyzed and concluded.

According to Olkkonen (1994), the Master of Science thesis in the field of industrial management focuses traditionally on one company or a group of companies, and it concerns to solve a certain problem by analyzing the company or planning something new. The results of the thesis are not expected to be generalized or common even though logical deduction and justification based on quantitative or qualitative analysis is required. (Olkkonen 1994, p. 23.) This study also focuses on one case of Finpro, and thus is not generalized for all organizations. Though, this is a good example of planning a process in the field of foresight, so Finpro´s experiments can be used as guidelines for other similar cases.

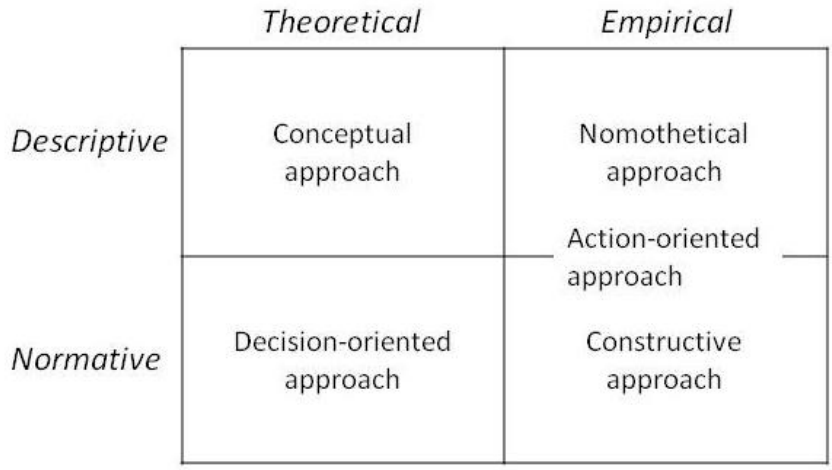
The most important common scientific alignments are positivism and hermeneutics: positivism grounds only on verified facts, while hermeneutics aims at interpretation and explaining (Olkkonen 1994, pp. 26 - 27). The main principle idea of positivism is that the research has to be independent of the researcher, and it has to be repeatable. The research bases on earlier (true) theories or wide empirical material, which can be analyzed statistically. Hermeneutics does not strive for independency because it

examines research material by understanding it, and the material is normally qualitative. The research problem is not easily structured and even though statistical analysis is not possible, hermeneutical approach enables deeper insight and unexpected findings of the phenomenon. (ibid. 1994, pp. 35 - 37.) The hermeneutical research strives for understanding the inner relations and change processes of the phenomenon in a situation where a statistical research based on wide material cannot be accomplished (ibid. 1994, p. 33). Hermeneutical research deals often with unique cases, for example new operational solutions. The most known hermeneutical research methods are action-oriented research and case study. In business administration field it is common to combine features of positivism and hermeneutics, for example in concept analytical and constructive methods. (ibid. 1994, pp. 52, 53.)

Neilimo & Näsi (1980) have defined four different approaches for business administration research: conceptual, nomothetical, decision-oriented, and action-oriented research. Action-oriented research aims at understanding. It might have as well normative and changing objectives, but it is more likely to explain the topic, and has hermeneutical backgrounds. It usually has an empirical part with a few object units like companies, and as a result, it gives conceptual systems with which the phenomenon can be planned and structured. Nomothetical approach differs from action-oriented approach because of its causality, extensive empirical material, aim at objective and inter subjective methodological rules, and of the nature of the results. (Neilimo & Näsi 1980, pp. 31, 35.) According to Olkkonen (1994) the nomothetical approach aims at explaining relations between the characteristics shown by interdependencies in observation material, in accordance with the ideas of positivism. The main purpose is to prove causal, or at least correlative, relations. The decision-oriented research approach, for its part, tries to develop mainly mathematical models to help the company´s decision making processes. (ibid. 1994, pp. 67, 70.)

The action-oriented research approach is often used when investigating company´s inner operations like decision-making, change, or development processes and management, and so the treatment of the problem includes people and their objectives (Olkkonen 1994, p. 73). This study deals with only one company and is not easily generalized. The objective is to understand this certain case, it focuses on inner operations, and has an aim to improve the process and generate new procedures. Thus, the appropriate research approach of this study is action-oriented research. Olkkonen (1994) continues that the action-oriented research bases on anti-positivistic science field, has research problems which are difficult to structure, and quickly changing questions or dynamic circumstances. Typically there are not neutral observations of the topic, and so the interpretations are based on the understanding of the researcher. The research problem is holistic and difficult to divide into sub-problems, and there are only a few case objects which will be treated deeply from inside. So, the action-oriented research has problems with generalization, and neither reliability nor validity is the purpose of the

study like in the positivistic research. (Olkkonen 1994, p. 74.) Kasanen et al. (1991) added constructive research approach to the division of Neilimo & Näsi (1980), which is shown in Picture 1.1.



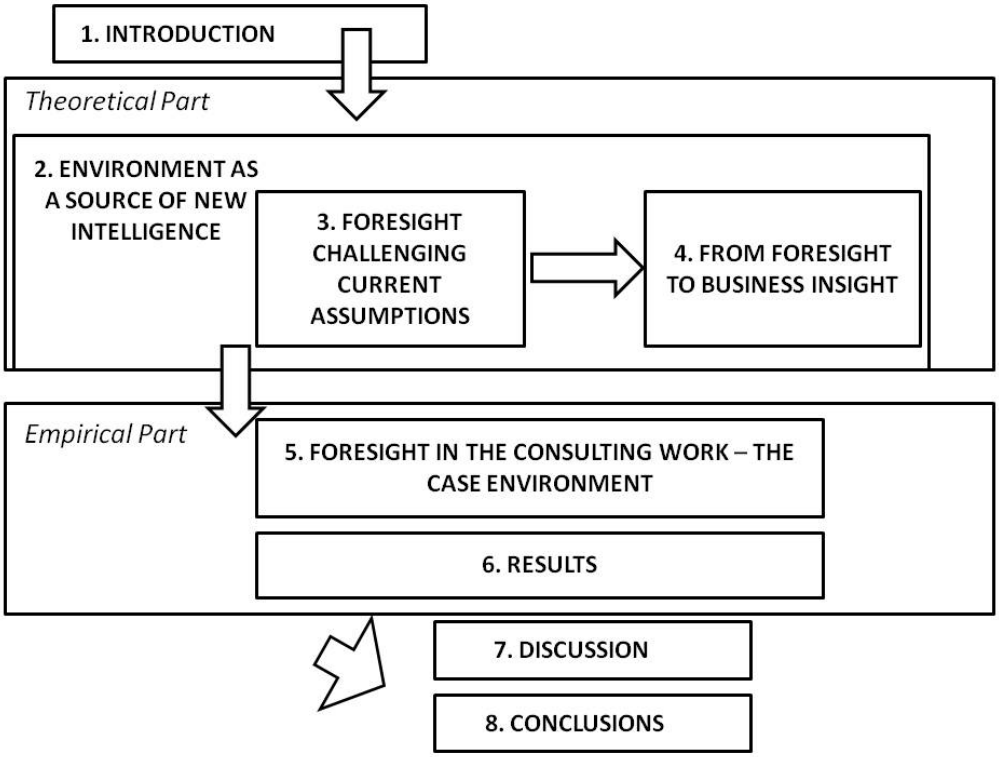
Picture 1.1. The research approaches of business administration research (modified from Kasanen et al. 1991, p. 317).

In constructive research, it is essential to bind the problem with the previous knowledge and to prove the novelty and the functionality of the solution (Kasanen et al. 1991, p. 305). Constructive research approach places to normative area of the business economics science´s methodological field, including both theoretical and empirical elements (ibid. 1991, p. 323). Constructive research approach is close to decision-oriented and action-oriented research; the primer because of the importance of the theoretical analysis, and the latter because of the connection to the practise. Still, decision-oriented research does not require the empirical justification of the results as in constructive approach, and action-oriented research does not aim at creating an explicitly new creature: construction, which means a solution of a concrete problem in a scientific frame. (ibid. 1991, pp. 317 - 318, 323.) According to Olkkonen (1994) constructive research method has normative objectives. It has its grounds in the development of the managerial problem solving methods, so it is close to decision-oriented research. In constructive research, the creativeness, innovativeness and heuristics are emphasized. It is also close to action-oriented research, because it has a connection to practice through empirical view of the study, and it also typically uses cases in the study. As action-oriented research aims at understanding the phenomenon and probably develops some theory, the constructive approach, for its part, starts the study from the problem and aims to develop a solving method for it. The results are verified with the applications of practice. (Olkkonen 1994, p. 76.) As natural, this study has also some features of constructive research, but is not fully compatible with that; for example the study does not have an aim of creating a construction. Forming of

theoretical part of the research has a conceptual approach, but new concepts or concept models are not created. According to the results of the questionnaire and the interviews, the appropriate business model will be outlined. In addition, the foresight field will be described and the position of the company outlined to investigate how Finpro differentiates from others with their services. The purpose is also to give some recommendations for the company about its further foresight strategy. Therefore, the research has also both normative and descriptive features.

1.3.1. Structure of the study

This thesis is divided in two parts: first chapters are forming a theoretical background for the study, and after that is the empirical part: the case company is presented, the research is accomplished, results are analysed, and in the end the whole thesis is concluded.



Picture 1.2. The structure of the study.

This first introductory chapter outlines the background for the thesis. First the phenomenon, in which the research is conducted, is described in a wider context. Next the purpose, objectives, and limits of the study are defined. Then research strategy and methodology are described, and in the end the research material is presented.

Chapter 2 focuses on the utilization of information and knowledge in an organization. First, the strategic use of information is considered. Next is emphasised the importance

of monitoring the business environment systematically to acquire relevant information, and to observe significant changes in the environment. Then the focus goes on exploiting organizational knowledge and co-creating intelligence from information by sharing information and knowledge among individuals.

Chapter 3 handles the main concepts used in this study. First the main idea of foresight is defined; it should be thought as a method of anticipating possible futures, not forecasting. The nature of weak signals and the formation of trends are described. Then, the concept of foresight and its characteristics are defined in the general view of future research and the methods used in it.

Chapter 4 is about transforming the benefits of foresight into business insight. First, some main terms of business are defined, like the importance of correct business model and strategy. Then the prerequisites of forming an innovative business model are described. Then the focus goes to the outcomes of foresight process; first the process itself is handled, and then the usage of foresight with redefining the company strategy.

Chapter 5 presents the characteristics of the case company, Finpro. First, some general information of Finpro is presented. Then, Finpro´s foresight process is described more in detail. After that is outlined the foresight environment in Finland . In the end is described the implementation of the empirical study.

Chapter 6 presents the results of the empirical research: questionnaire and interviews. Many graphs are included to clarify the results. In addition, the investigation of Finpro´s positioning in the field is presented. In the end, there is a discussion part, where the conduction of the study is assessed.

Chapter 7 compares the study to the previous theoretical section. This chapter also includes the overall assessment of the study. First, the results of the questionnaire and interviews are reflected in the light of the theory part of the thesis. Also all the research questions get their answers; stakeholders´ interest for foresight is evaluated, a suitable business model is outlined, and Finpro´s differentiation from other foresight players is evaluated. In the end there is an assessment of the success of the thesis.

Chapter 8 concludes the thesis. There are as well recommendations for Finpro in a form of a proposal of foresight strategy. Also future research topics are outlined.

1.3.2. Case study

Case study offers detailed, intensive information about a unique case, event or a small group of inter-related cases. Typical features of the case study are: 1) object is an individual, group or community; 2) study is often about a process, and the object is

studied in relation to its environment in its natural context; 3) the material is collected using many methods, e.g. observing, interviewing, investigating documents; 4) the final objective is usually to describe the phenomenon. (Hirsjärvi et al. 2000, p. 123.)

This study is a case study of one Finnish semi-public organization called Finpro, which main mission is to help Finnish companies in internationalization, but which has recently started a new foresight process to help to interpret the significance of changes in the business environment. According to Olkkonen (1994, p. 107), the empirical material of the case study in the action-oriented research has to be chosen in a way that it benefits and makes possible the understanding of the research problem, and the cases should be typical representatives of the problem. Yin (1994, p. 1) claims that case study is a preferred strategy when the focus is on a contemporary phenomenon within a real-life context in which the investigator has little or no control. Case study research can include both single- and multiple-case studies, and it can include quantitative evidence (ibid. 1994, p. 14). The elements of the case study suit well to this study. Also in case studies it is important to evaluate the validity of the study, i.e. establishing the domain to which a study´s findings can be generalized, and the reliability of the study, i.e. demonstrating that the operations of a study, such as data collection procedures, can be repeated with the same results (Yin 1994, p. 33). The validity and the reliability of this study are evaluated in Chapter 7.3.

1.3.3. Questionnaire and interviews

This study is a survey research; questionnaire and interviews are the methods used to collect empirical material. According to Hirsjärvi et al. (2000), survey research means modes of questionnaire, interview, and observation, where material is collected standardized and where target persons form a sample of certain basic group. Standardization means that questions have to be asked similarly from all the respondents. The material gathered by survey research is usually treated quantitatively. Questionnaire is one of the central methods of survey research. Its advantage is in the ability to collect wide research material; research can include many persons, and many questions can be asked. It is also very efficient method. Questionnaire has still some disadvantages also, as the material may end up being too superficial, or research is theoretically modest. You cannot either guarantee how seriously the respondents have answered to questionnaire, and it is hard to assess how successful were the planned questions. (Hirsjärvi et al. 2000, pp. 180 - 182.) The important thing is to form a sample so that it covers the group as well as possible and represents all the research objects, to not distort the results; it is very common that the research has defects or falsies because of the asymmetric material (Olkkonen 1994, 106.).

Questionnaires normally have both open and closed questions to get the most out of the respondents. According to Foddy (1993) open questions do not suggest the answers to

the respondents but allow them to express themselves in their own words. Thus the results are more diverse and describing. Closed questions, in their part, are more easily compared as they ask exactly the same questions from the respondents and thus provide less variable results. The most general criticism towards closed questions is that pre-set response options may lead the respondents to give answers they otherwise would not give. (Foddy 1993, p. 128.) In the questionnaire of this study both open and closed questions were used; closed to get comparable data of the answers, and open to get the most ideas of the respondents. The topic of the questionnaire might also be a bit unfamiliar for the target group, so the possibility to write open comments allows widening up the responses. Olkkonen (1994) says that when the questions are about qualitative material, it has to be remembered that the answers are insights, opinions, believes and misbelieves, even consciously false statements. So the material does not offer objective picture of the real world but a picture of the opinions of it, which is a fact about people thinking or what they tell they are thinking. (Olkkonen 1994, p. 105.)

Belson (1986) lists the principal causes of error in the gathering of data through survey procedures of questioning: a) respondents´ failure to understand questions as intended, b) leading, loaded or suggestive questions, c) a lack of interest or effort from the respondents, d) respondents unwillingness to admit to some behaviours or attitudes, e) the failure of respondents´ memory or comprehension process in the stressed conditions of the interview, and f) interviewer failures of various kinds, for example failures in presentation procedures (Belson 1986, pp. 13, 16, 18 - 20). According to Foddy (1993), a requirement for a successful question-answer procedure is that both researcher and respondent have a common understanding of the investigated topic. It is also important that the respondents actually have the required information, that questions are relevant to them. Respondents also need to be capable of verbalising the information that the researcher wants under the research situation. (Foddy 1993, pp. 25 - 37.) The questionnaire should be tested with a small sample before its implementation to make sure that all the questions are understandable and possible to answer in a way the researcher intends to (Olkkonen 1994, p. 106). Difficult and abstract words should be avoided, or at least defined clearly before the question, and the questions should be brief, simple and concrete to gain as relevant answers as possible (Foddy 1993, p. 50). The evaluation of the success of this questionnaire is talked later on in Chapter 6.3.

The other sources of the empirical material in this study are interviews. According to Hirsjärvi et al. (2000) interview is unique as a research method because is enables straight linguistic interaction with the research object. This, though, provides both advantages and disadvantages. The greatest advantage is the flexibility in collecting the material; the order of questions may vary, and the themes can be explained more and extra questions can be presented if necessary. The reliability might suffer because of the fact that interviews normally provide socially permitted answers. Also the interpretation of the ambiguous answers might be complicated. (Hirsjärvi et al. 2000, pp. 191 - 194.)

Hirsjärvi et al. (2000) divide the types of the research interview in structured, theme, or open interview. The interview might also be something in between of those. Structured interview has fully determinate order and questions, and these are to be followed. Theme interview is in between structured and open interviews; the topics of the interview are known, but the exact mode and order of the questions is missing. In an open interview, or unstructured interview, the interviewer is clarifying the thoughts, opinions, feelings, and insights of the interviewee, according as when they are truely faced in the conversation. (Hirsjärvi et al. 2000, pp. 195 - 196.) The interviews of this study are most close to theme interviews; they all had readily thought themes and questions to perform, but they did not follow those strictly. This can also be called as half-structured interview. The implementation of the study in the case organization will be later on discussed in more detail in Chapter 5.4.

1.4. Research material

To form the theoretical background for the study, the literature of many study fields was investigated; for example general business administrative research and publications were read, as well as research from the area of business information and knowledge management. The new topic for the author was the future research study, which was needed to accomplish this study theme. Future study has long traditions, but foresight is quite a new concept with different point of view, so most of the literature related to that was in the form of articles, publications, or conference papers. Foresight also has its link to business intelligence studies, but those utilize mostly historical information in the analysis. So, the viewpoint is also a bit different from those also. There are at least some distortions dealing with weak signals and foresight, and a lot of conferences handling this theme, so it will surely widen its sphere in the future.

To accomplish the theoretical part of the study, many electronic databases were used. Those were available in Tampere University of Technology eLibrary. At least services from EBSCOhost, Elsevier Science Direct, and Emerald were used. From the journals the focus was with Technological Forecasting & Social Change, Harvard Business Review, Competitive Intelligence Review, Journal of Futures Studies, Futures, R&D Management etc. Many conference papers were investigated, and also university publications especially from the universities of Harvard, Cambridge, and Oxford.

To accomplish the empirical part of the study, research material was collected from case company´s stakeholder groups by a questionnaire and interviews. The study implementation will be discussed in Chapter 5.4. Also conversations with Finpro´s foresight team have been used as a material to form a view of the entity.

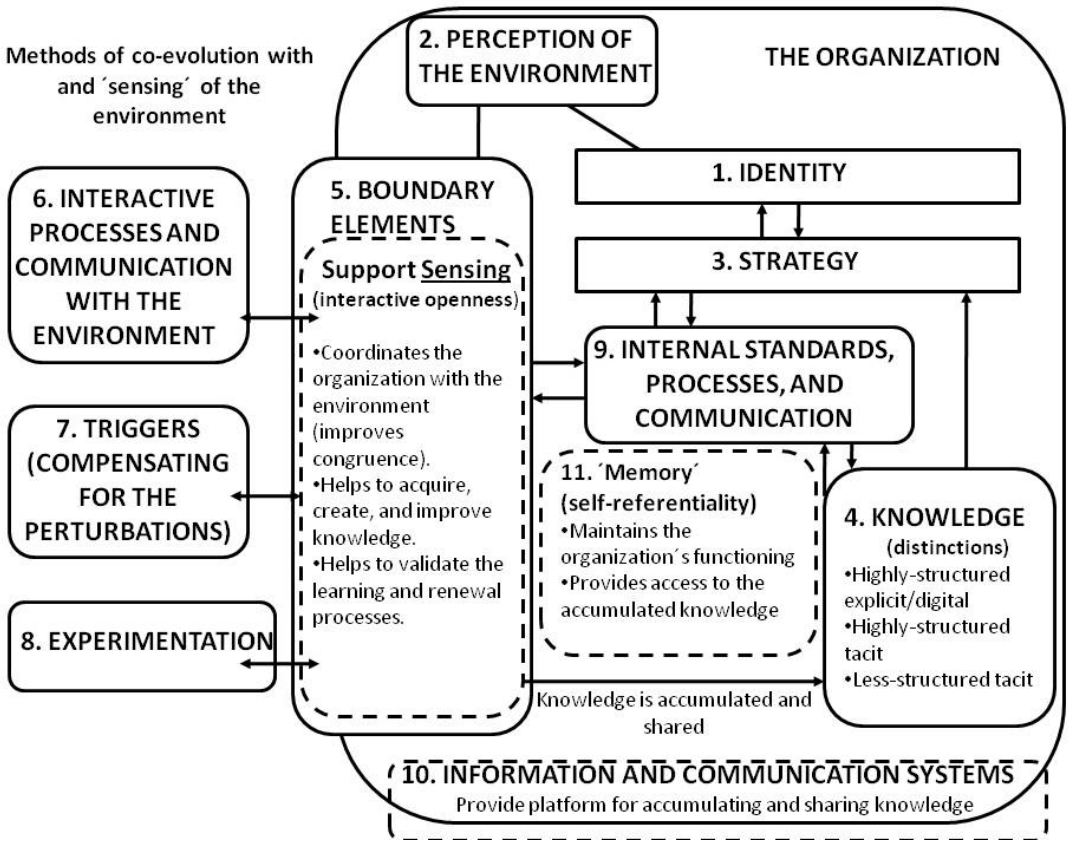
2. ENVIRONMENT AS A SOURCE OF NEW INTELLIGENCE

This chapter focuses on the utilization of the business environment as a source of information and knowledge for an organization. First, organizations interacting with their environment are handled more generally; model of the learning organization and the strategic use of information are presented. Second subchapter focuses on monitoring the business environment systematically in order to acquire relevant information and to observe significant changes in the environment. The last subchapter handles exploiting organizational knowledge and co-creating intelligence from information by sharing information and knowledge among parties.

2.1. Information in a knowing organization

In the decision-making, today´s managers face an abundance of information, which can sometimes make them to be paralyzed (Fleisher & Bensoussan 2007, p. 9). Therefore, a big amount of information has to be used in a way that benefits the organization. Information, which harms the functions of the organization, has to be filtered out, and significant information, for its part, should be used reasonably in compliance with the purpose and the main idea of the organization.

To describe in detail the nature of an organization which uses information from and interacts with the environment to improve its inner competence, and learns and changes its actions accordingly, Maula (2005) has developed a model of an organization as a living composition (see Picture 2.1). A living organization composes of its inner and outer processes: memory (inner components) and sensing (outer components). An organization has a self-referential capability to construct its reality in relation to its past and future, which forms its memory. It includes also the accumulated data, and a capability to access and interpret its experiences. Memory affects to the functioning and learning. Sensing, for its part, refers to the way an organization interacts with its environment by being aware of, and compensating for perturbations, by improving its knowledge, and by changing internally. (pp. 53 - 55.) Picture 2.1 shows the boundary elements and outer components through which an organization interacts with its environment, and inner components, which form its existence and memory.



Picture 2.1. Living composition: 10 strategic components and two knowledge flows (modified from Maula 2005, p. 56).

Maula´s (2005) living organization composes of 10 strategic components:

1. Identity: an organization maintains its integrity and can be distinguished from the background and other units.

2. Perception of the environment: living organization creates knowledge about the environment according to its own internal rules.

3. Strategy: helps in operationalizing objectives and visions into internal standards and processes.

4. Knowledge: facilitates and regulates organization´s self-production process.

5. Boundary elements: various embedded roles and functions that enable reciprocal interaction between an organization and its environment.

6. Interactive processes: methods used to communicate reciprocally with the environment and to influence the co-evolution of each with the other.

7. Triggers: perturbations that may lead to compensations in an organization´s structure.

8. Experimentation: helps an organization to create new knowledge and learn about its environment through successes and failures.

9. Internal standards, processes, and communication: various elements that influence motivation and capability to learn.

10. Information and communication systems: a variety of more or less structured information systems. (Maula 2005, pp. 48 - 49.)

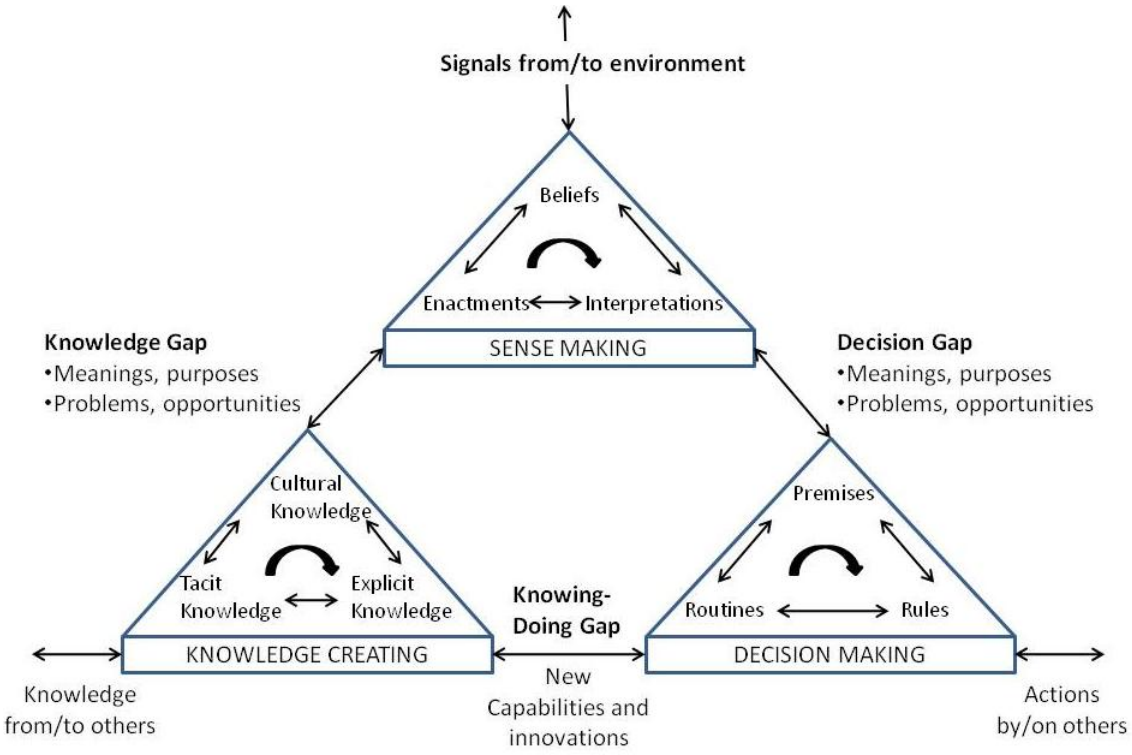
A living organization acquires and creates new knowledge by exploring its chaotic environment and by co-evolving with it. It also creates order and new knowledge through the continuous maintenance of its internal structure. (Maula 2005, p. 63.) Living organization model outlines well the essence of an organization as an entity which is part of its environment. This entity uses information from its environment to evolve internally and to respond to the changes in its surroundings.

The information can be used in different purposes in an organization. According to Choo (2006) there are three distinct arenas where the creation and use of information play a strategic role. First, organizations use information to make sense of the changes in their dynamic, uncertain environment. Shifts in the environment generate continuously ambiguous signals with multiple interpretations, and it is crucial to determine the most significant changes, interpret their meaning, and develop appropriate responses. The short-term goal is to create shared understandings that allow the organization to keep on acting and function; the longer-term goal is to make sure that the organization adapts and continues to succeed in a dynamic environment. (Choo 2006, p. 2.)

The second arena of strategic information use is when organizations generate new knowledge. Individuals develop informal knowledge that is derived from practice and experience; it is a source of creativity and innovation, without which organization cannot create new knowledge. Organizational knowledge is not just a sum of individuals´ knowledge, but the existence of the organization is based on its ability to integrate and channel its knowledge into activities and outcomes that are valuable and meaningful. An organization can grow when it is able to continuously refresh its knowledge and expand its capabilities. (Choo 2006, p. 2.) Also Nonaka & Takeuchi (1995, p. 3) define that organizational knowledge creation is a capability of an organization as an entity to create new knowledge, disseminate it throughout the organization, and embody it into the systems, services, and products. To support knowledge creation, it is important first to create enabling conditions that encourage the

creation, sharing and use of knowledge, and then provide enabling tools to support it (Choo 2006, p. 316). To create knowledge, learning from others and the skills shared with others need to be internalized - reformed, enriched, and translated to fit the company´s identity and self-image (Nonaka & Takeuchi 1995, p. 11).

The third arena of strategic information use is, according to Choo (2006), when organizations search for and evaluate information to make decisions, which is complex, messy, and affected by different needs of different stakeholders, the biases of individual decision makers, information being hard to find, and the lack of time or resources. In decision making, it is as critical to make sensible interpretations as making the right moves; we need to know what is going on and why before we can decide what is to be done (Choo 2006, pp. 2, 316.) Picture 2.2 concludes Choo´s (2006) idea of the knowing organization. Sense making process begins when the organization face a change in the environment. Beliefs, past actions, and interpretations affect in making sense of new signals. The outcome is the perception of an opportunity or problem set against past and current constructions of meaning and purpose of the change. (Choo 2006, p. 249.)



Picture 2.2. Sense making, knowledge creating, and decision-making in the knowing organization (modified from Choo 2006, p. 250).

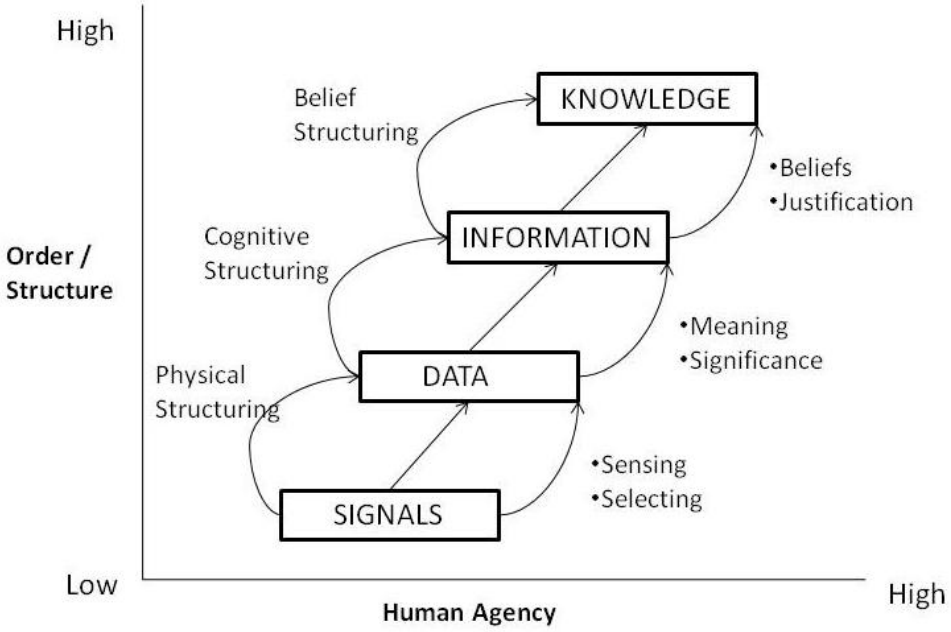
Choo (2006) continues that when new knowledge is needed to solve a problem, knowledge creation starts; it is interplay of tacit and explicit knowledge shaped by shared norms and assumptions of the organization, and the result is a new insight that can help the organization to make sense of a problem, or to adopt a new course of

action. Decision-making is about respecting past experiences as well as recognizing the situations where old assumptions no longer apply and new rules need to be constructed. The outcome is commitment to the chosen course of action, which rests partly on shared understanding of the interpretation, reasoning, and knowledge that supports the selected option. If this commitment is missing, it is difficult to act on new knowledge, and so the organization faces knowing-doing gap in its action. (Choo 2006, p. 250.) Information plays an essential role in the functioning of an organization, so it is reasonable to clarify the basic concepts concerning it.

2.1.1. The essence of information

General categorization of information starts with data, which can be symbols, numbers or letters without significance; then information, which is data with meaning; to knowledge, which combines the information with experience; and then intelligence and even wisdom. According to Michalewicz (2007, p. 4) data are collected daily in a form of bits, symbols, numbers, and objects; information is organized data, which are pre processed, cleaned, arranged to structures, and eliminated the redundancy; and knowledge is integrated information, which contains facts and relationships that have been perceived, discovered, or learned. Nonaka & Takeuchi (1995) define that information is a flow of messages, and that flow creates knowledge, which anchors in the beliefs and commitment of its holder. Knowledge is a dynamic human process of justifying personal belief toward the truth. Both information and knowledge are relational and context-specific in that they depend on the situation, and develop dynamically in social interaction among people. (Nonaka & Takeuchi 1995, p. 58 - 59.) Fuld (1995, p. 24), for his part, uses the division into data, information, analysis and intelligence, where data are scattered bits and pieces of knowledge, information is a pooling of these bits of knowledge, analysis is distilled information, and intelligence is the implication that will allow a person to make a decision. Wisdom is usually seen as the next level from intelligence, which evolves along long history of creating knowledge, experiences, and mental challenges.

Information and knowledge are outcomes of human action that engages signs, signals, and artifacts in physical and social settings. Information depends on an aggregation of data, and knowledge builds on an accumulation of experience. (Choo 2006, pp. 131 - 132.) Picture 2.3 describes the transformation from signals into data, information, and knowledge.



Picture 2.3. Data, Information, and Knowledge (modified from Choo 2006, p. 132).

In the lower left of the Picture 2.3 are signals, which can be sights, sounds and other sensory phenomena that reach a person. From the big amount of signals, an actor notices and selects only a small number, and formulates those into packets of data. Data are facts and messages; by cognitive structuring of data, an observer gives meaning and significance to it, and thus it becomes information. At the top of the picture, information evolves to knowledge, which happens when a person forms justified, true beliefs about the world. (Choo 2006, pp. 132 - 133.) Regarding this study the most important thing is the meaning an observer gives to signals or information; it affects to the signals which are collected from the environment, and which end up to be analyzed in foresight work.

Choo (2006) states that the knowledge of an organization can be categorized as tacit, explicit and cultural knowledge. Tacit knowledge is personal, derived from experience and practice, and is hard to verbalize. It is implicit knowledge used by persons to do their work and to make sense of the world. (Choo 2006, pp. 195 - 196.) Already Polanyi (1966, p. 4) claimed that "We can know more than we can tell". Tacit knowledge is difficult to transfer or verbalize because it cannot be expressed as specific rules or elements, and it exists as knowing something as a whole (Choo 2006, p. 136). Explicit knowledge is knowledge that has been codified formally using symbols, or made tangible as a physical artefact, and therefore can be easily communicated to others (ibid. 2006, p. 196). Nonaka & Takeuchi (1995, p. 8) describe that explicit knowledge is possible to express in words and numbers, and is easily communicated and shared. Therefore it is also easy to move outside of an organization´s boundaries, for example to competitors (Choo 2006, p. 142). However, Nonaka & Takeuchi (1995, p. 8) say that explicit knowledge is only the tip of an iceberg, because knowledge is primarily tacit; it

is not easily visible and expressible, it is highly personal like subjective insights and intuitions, it is hard to formalize, and it is deeply rooted in an individual´s experience and action, as well as values, ideals, and emotions. According to its nature, explicit knowledge encodes past learning, and thus facilitates coordination between disparate activities and functions and reduces the information-processing load associated with task performance, so it has important purposes in an organization (Choo 2006, p. 142), even though nowadays the importance of tacit knowledge is more widely discussed especially concerning the expert work. In all along more cases, the companies´ physical assets are not playing the central role in their activities, but the intangible assets have more significance. Cultural knowledge consists of the beliefs and shared assumptions of organization´s identity, capabilities, goals, customers and competitors, and it is used to assign value and significance to new information and knowledge (Choo 2006, p. 196). So, cultural knowledge affects to what information is let enter the organization as regarded important.

2.2. Perceiving the surroundings

”Scanning the periphery is intimately tied to the organisation´s capacity to systematically create meaning out of apparent chaos” (Day & Schoemaker 2004, p. 133). As showed in the first section, gathering information from the environment to support the functioning of the organization is essentially important. Organizations use environmental information both to evolve internally and redefine their actions, and observe and respond early enough to the changes which require action. Before and besides gathering information it is good to clarify which information is needed.

2.2.1. Information needs

According to Choo (2006, p. 29) information needs arise when there are gaps between the state of knowledge and the ability to make sense of an experience. We can never be sure what is coming in the future but there is a better possibility of succeeding if we prepare ourselves as well as possible (Cornish 2004, p. 1). The main issue is the management of ambiguity: which messages in the flood of signals indicating change are important, and as the information is ambiguous, which interpretation is the most plausible and usable to understand what the signals mean (Choo 2006, p. 105).

Choo (2006) starts with the fact that companies need information to make decisions. To make a completely rational choice, the decision maker would have to identify all available alternatives, to predict what consequences each one of those would cause, and evaluate these consequences in the light of company´s goals and preferences. However, it is unrealistic to expect the decision making process to function like this because of the limited cognitive capacity of the decision maker, scarce resources or the company, and the information constraints. Therefore, the aim is to find alternatives that are good

enough rather than the best possible choice. (Choo 2006, pp. 204 - 205.) Thus, the companies should not ignore information for the reason that it is not adequately in detail or it may contain errors; it is essential to use poor information because imperfect knowledge of the future should be utilized when the events are still fluid and not hardened into realities that cannot be changed (Cornish 2004, p. 3). For example investors confident more in companies that admit what they do not know, and have a plan to turn unknown into known (Christensen 2004, p. 57). Compromises are needed to be able to use information in The Moment, not only when it is credible enough.

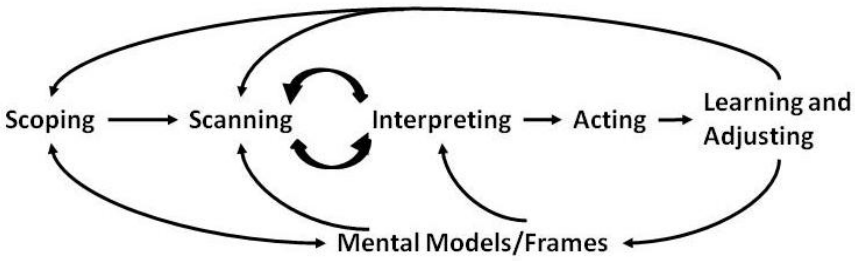
When companies are missing important changes in their environment, typically it is because they focus on certain information, and thus ignore information in other, neighbouring areas (Rohrbeck & Gemünden 2008, p. 4). To achieve a comprehensive picture of an organization´s operations and business environment, information from different sources and on different subjects is needed (Hannula & Pirttimäki 2004, p. 5). According to Kärkkäinen et al. (2001), it is essentially important to understand customers´ unarticulated needs, assess those in systematic and careful way, and react fast to the changing needs in order to be able to succeed and gain competitive advantage. The authors conducted a study about the assessment of unrecognized hidden and future customer needs in Finnish business-to-business companies. Almost 60 % of the companies did not report utilizing regularly any methods to assess new customer needs, even though it was seen very important for the success. In more than 40 % of the companies among the most significant problems in the assessment of the needs were difficulties to evaluate effects of customer´s stakeholders on future and hidden needs, as well as not knowing the long-term development trends affecting to operations. The resources for the assessment were also seen insufficient, and thus the information was not gathered systematically. The most common regularly used methods were statistical marketing research (15%), brainstorming (12%) and scenario methods (6%). (Kärkkäinen et al. 2001, pp. 391 - 392, 395 – 403.) Systematic information gathering and analysis is essential in succeeding in this rapidly-changing and information abundant business environment, so scanning the environment can make the difference.

2.2.2. Scanning the business environment

The organizations need to shift their focus from the traditional, logical, slow-moving and mature competitive arenas to a new competitive worldview (Fleisher & Bensoussan 2007, p. 393). New ways to define one´s own competition arena is needed to adopt to the dynamic global market place requirements. Besides failing to see competitive threats from the environment, companies also make big mistakes by failing to understand actions or reactions at the periphery (Day & Schoemaker 2004, p. 129). Choo (2006) claims that today's organizations are aware that their ability to survive and grow is determined by their capacity to make sense of their environments, and to continuously renew their meaning and purpose in new conditions. Adaptability in a dynamic

environment is challenging because it requires organizations to be skilled at both sensing, which means noticing potentially important messages in the environment, and making sense, which is constructing meaning from what has been sensed. Thus, organizations scan the environment broadly to be able to recognize trends and issues that will have a significant impact on them. (Choo 2006, p. 77.) The foresight process is exactly planned to help with this; sensing globally, interpreting and analyzing outcomes.

A company has a challenge to expand its scope to include all the relevant parts of the surroundings but not more than that. Scanning can be focused on exploitation or exploration, the former having greater depth in detail and the latter more ground but less detail; the challenge is to pay attention to both the detail and the big picture. The inputs from scanning should be interpreted, and company should act in accordance; it is important to learn from it and adjust the practices as well. This peripheral learning is an on-going, non-linear and iterative process with many feedback loops, and by which organizations, as well as individuals, define and change their vision of the current periphery. (Day & Schoemaker 2004, pp. 133 – 140.) Picture 2.4. illustrates the learning process.

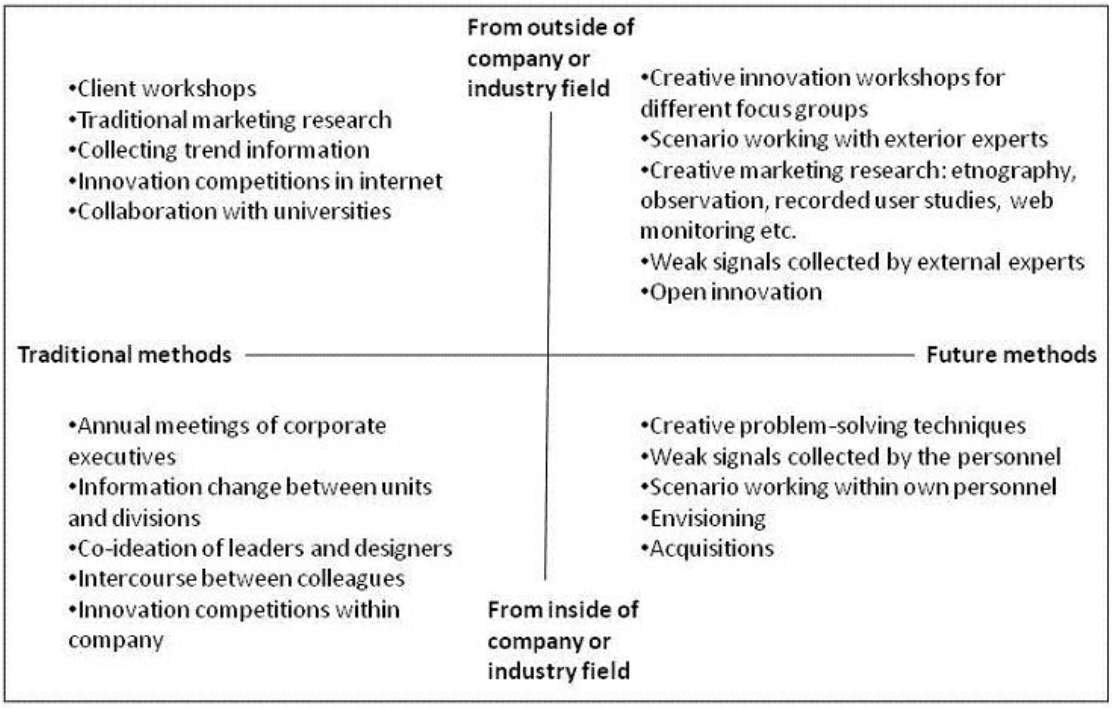


Picture 2.4. Peripheral vision as a learning process (modified from Day & Schoemaker 2004, p. 133).

It is necessary to find and utilize all appropriate information and knowledge in the current business environment. The amount of information is increasing with advances in information and communication technologies, so it is difficult to choose what kind of information is relevant to make better decisions from the overload of information. (Hannula & Pirttimäki 2004, p. 9.) Day & Schoemaker (2004) say that with scarce resources the company should decide where to focus its attention; whether to build depth in a focal area at the risk of decreasing the scope of vision, or try to cover the wider periphery even though it means losing the intensity of the viewpoint. In a fast-changing and increasingly interconnected world it can be dangerous to have a narrow focus of the surroundings, but also it is not affordable to focus on all of the cases with intensity. So, there will always be some issues that stay outside the organisation´s focal vision, but the key question is to identify what is important, and to know when to focus on it. (Day & Schoemaker 2004, p. 131 - 132.) The scope and the timing matter.

Mannermaa (1999) claims that until now, in the micro-level of companies, it has been common to think that monitoring only one´s own industry field is important, but now and ever more in the future that will not be enough. The success factors, new markets, and innovations can be found in totally different fields outside the scope, so the concept of operational environment should be understood widely. (Mannermaa 1999, p. 21.) In the periphery one can see opportunities, threats and strategic errors. It can be still difficult to define the periphery that should be investigated. One suggestion is that the periphery is wherever your attention is not. Having the peripheral vision is to be able to pay attention to the world you are not normally paying attention to. The scanning and interpreting the periphery should not be restricted to a certain business. (Day & Schoemaker 2004, p. 130 – 131.) To discover and recognize new business opportunities, the external knowledge landscape is a vital resource. These opportunities can enable the company to launch new initiatives which might help stretching industry boundaries to exploit converging trends which might some day change the whole industry. (Chesbrough 2006, p. 183.) So, the periphery may also tell when it is time to change strategic direction (Day & Schoemaker 2004, p. 128). But refocusing the strategy happens seldom easily or quickly. Settled habits and routines, deeply rooted mental models, and prevailing culture intend to stabilise the focal area and thus reinforce the status quo. It can be useful to communicate more with outsiders of the company, whose own core business is part of the company´s periphery. Though, companies might resist paying close attention to the periphery because it scares to be overcharged and disturbed by a vast amount of weak signals. (ibid. 2004, p. 133.) Information overload might drown the relevant information under it.

Environmental scanning systems became popular when the companies recognized that the broader environment was becoming a more critical part of the business landscape, and it could make or break their fortunes; the companies knew that they needed more effective *systems* to alert them about environmental developments, and then integrate those into their strategy development processes (Fleisher & Bensoussan 2007, p. 392). Cornish (2004, p.78) says that scanning is typically based on systematic survey of newspapers, magazines, web pages and other media, as well as publications and reports. Halliman (2001, p. 28) presents text mining as one way to scan and examine the external business information to gain business intelligence; the process identifies concepts in and extracts concepts from large amounts of unstructured text in databases, and it makes business intelligence more accessible. As one way to access external knowledge, Chesbrough (2006, p. 50) proposes to scout the activities of young start-up companies in the field of interest, to employ university professors or graduate students, or to fund a research; those who fund projects get proposals from many professors, so it is a very low-cost way to scan the current opportunity horizon in the scientific and engineering fields. Solatie & Mäkeläinen (2009) have collected some concrete suggestions from where and how to collect ideas to be utilized in business and in interpreting the environment (Picture 2.5).



Picture 2.5. Collecting new ideas (modified from Solatie & Mäkeläinen 2009, p. 162).

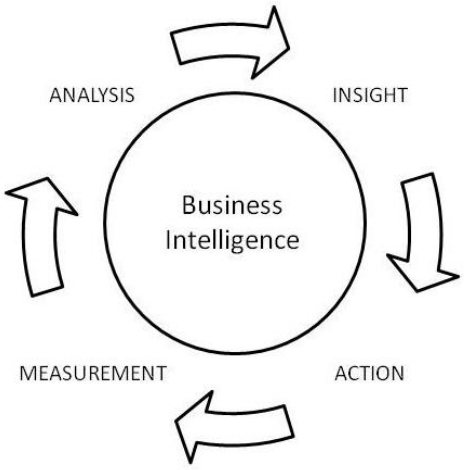
Status quo as a company´s peripheral vision is not enough at all. According to survey of global senior managers by Day & Schoemaker (2005), 81% of respondents were thinking that their need for peripheral vision in the future would be a lot greater than their current capacity. Another mentioned survey of corporate strategists revealed that two-thirds of respondents have had been surprised by as many as three high-impact events during the past five years, and 97% were saying that their companies lacked an early warning system. However, according to authors, the companies in more stable environment need less peripheral vision than the companies in complex and rapidly changing surroundings, and so focusing too much on unimportant signals can end up being neurotic and only wastes resources. (Day & Schoemaker 2005, p. 136.) Foresight services can offer a solution for that; it can act as an early warning system with wanted focus. General term, business intelligence, aims at managing the information flood and making sense of it.

2.2.3. Business Intelligence

Scanning the environment provides companies an access to a load of information. Thierauf (2001, p. 3) claims that the current increase in available data is useless without an effective way to access and synthesize it; basic business data can be transformed into actionable business intelligence (BI). According to Halliman (2001), business intelligence uses information to reveal threats and opportunities in purpose of motivating an organization to take an action. Business intelligence can mean anything that has something to do with using business information in order to help an

organization to gain insight into its present or future business. (Halliman 2001, p. 3.) Business Intelligence can be defined both as a state: a report that contains knowledge; and as a process: software responsible for converting data into knowledge (Michalewicz et al. 2007, p. 3). According to Hannula & Pirttimäki (2004) business intelligence refers to processes, techniques or tools to support the making of faster and better decisions. It is a systematic and organized process by which organizations acquire, analyze and disseminate business information from significant external and internal sources. It plays an important role in producing up-to-date information for operative and strategic decision making, and its main task is to refine and analyze business information, and to make sure it is used effectively. The objective is to translate this business related data and information into useful knowledge and intelligence which supports the decision making. (Hannula & Pirttimäki 2004, pp. 1 - 3.) The main disadvantage is that business intelligence as an activity is sometimes keen on historical data (ibid. 2004, p. 2).

Thinking BI as a process it requires defining its phases. Vitt et al. (2002, p. 17) describe this as the BI cycle, a framework for performance management, and an ongoing cycle by which companies set goals, analyze progress, gain insight, take action, measure success, and start all over again. Picture 2.6 shows the BI cycle.



Picture 2.6. The BI cycle (modified from Vitt et al. 2002, p. 18).

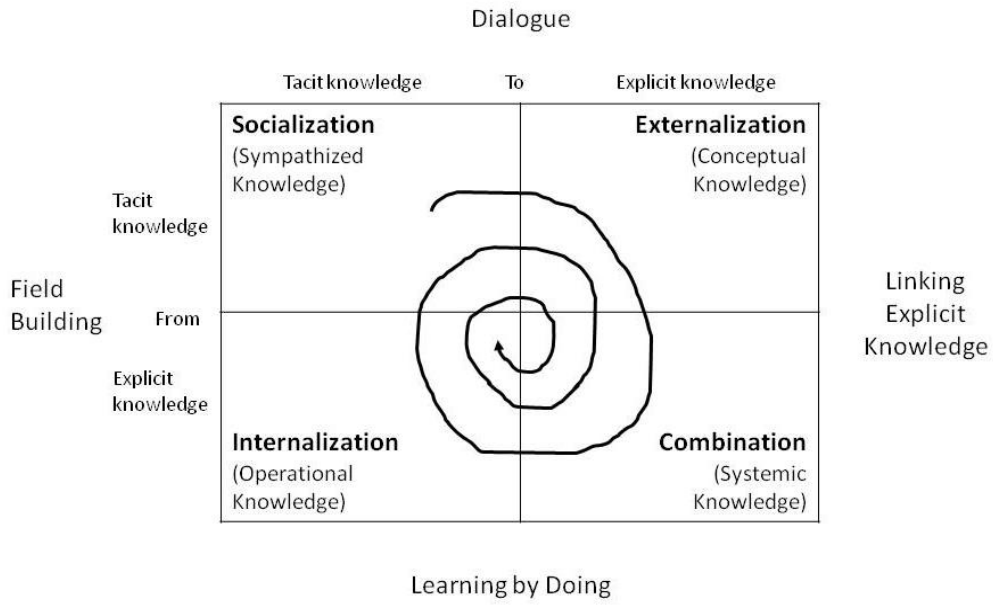
Competitive intelligence (CI) is a value-added process that utilizes competitive information and analyses to seize competitive advantage and develop knowledge about the competitive environment: customers, competitors, suppliers, strategic alliances, future opportunities, and threats (Tyson 2005, pp. 2-1, 2-3). According to Fuld (1995) all companies have same access to information, and the companies which can convert available information into actionable intelligence will gain competitive advantage. It is intelligence, not information, which helps a manager to respond to challenges with the right market tactic or long-term decision. (Fuld 1995, pp. 23 - 24.) It is essential to be

able to convert the acquired intelligence into practice through the intercourse of the people in and within organizations.

2.3. Co-creating intelligence out of information

So the organizations, which effectively can generate, capture, disseminate and apply knowledge faster and better than their competitors, have a higher probability of achieving successful performance (Fleisher & Bensoussan 2007, p. 9). Collecting data from inside and outside an organization should have some defined objectives and methods for the process to be reasonable and to prevent the organization from drowning in a big amount of dispensable information. Disseminating this intelligence increases the amount of collective organizational knowledge. Knowledge is ever more significant resource and basis of services in today´s companies, and thus its management plays a significant role in determining which companies can succeed. Sarvary (1999) describes knowledge management (KM) as a business process through which companies create and use their institutional or collective knowledge. It consists of organizational learning, knowledge production, and knowledge distribution. Knowledge is critical intellectual capital of the company. KM intends to synthesize the cumulative experience of the company as an entity, and integrate it with knowledge acquired from outside sources. (Sarvary 1999, pp. 95 - 96.)

According to Choo (2006), most organizational knowledge is rooted in the expertise and experience of its members, and it is revealed in the range of capabilities the organization possesses in order to act to gain its goals. The organization provides a physical, social, and cultural setting so that the practice and growth of this knowledge has a meaning and purpose. (Choo 2006, p. 127.) Nonaka & Takeuchi (1995) present a model of knowledge conversion, which bases on the assumption that knowledge is created through the interaction between tacit and explicit knowledge. Four different modes of knowledge conversion are (1) socialization: from tacit to tacit knowledge, (2) externalization: from tacit to explicit knowledge, (3) combination: from explicit to explicit knowledge, and (4) internalization: from explicit to tacit knowledge. Socialization means sharing experiences and thus creating tacit knowledge, like shared mental models and technical skills. Externalization is a process of articulating tacit knowledge into explicit concepts, like concept creation by dialogue or collective reflection. Combination means systemizing concepts into a knowledge system, and it includes combining different bodies of explicit knowledge. Internalization process embodies explicit knowledge into tacit knowledge. When experiences are internalized through the previous stages into individual´s tacit knowledge bases, they become valuable assets. (Nonaka & Takeuchi 1995, pp. 62 - 69.) Picture 2.7 shows the knowledge conversion model, the SECI model.

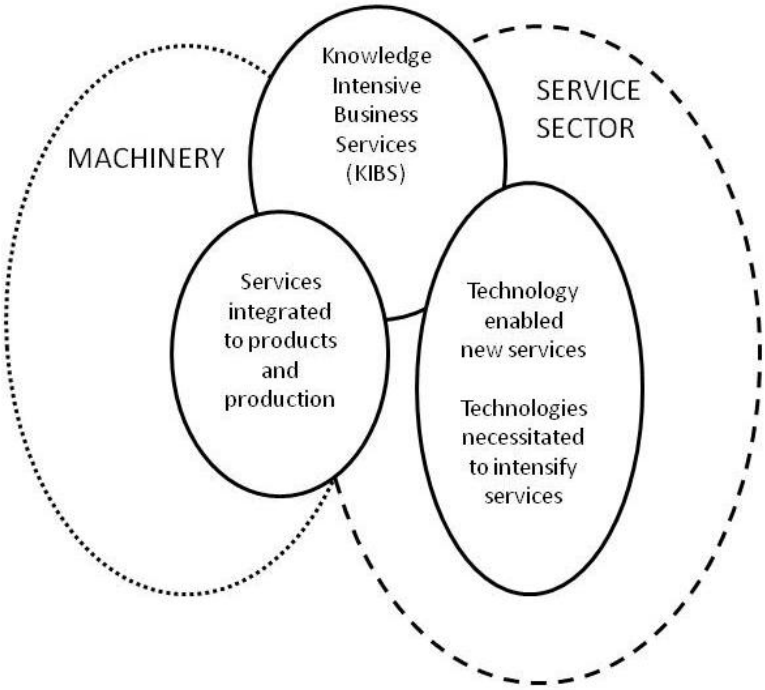


Picture 2.7. Knowledge conversion (modified from Nonaka & Takeuchi 1995, pp. 71, 72).

Nonaka & Takeuchi (1995) continue that tacit knowledge of the individuals forms the basis of organizational knowledge. That is a continuous and dynamic interaction process between tacit and explicit knowledge, where the contents of knowledge interact with each other in the spiral. Tacit knowledge has to be mobilized from the individuals, and organizationally amplified through these four modes of knowledge conversion, starting at the individual level and moving up through expanding communities of interaction. (Nonaka & Takeuchi 1995, pp. 71 - 72.) Besides bringing out organizational knowledge through interaction of the people, it should be brought out to organization´s customers through services they offer.

Maula (2007, pp. 2-5) says that organization´s information may exist in services and products, in expertise and experience, in methods and systems, and in an ability to create new and innovate; knowledge intensive companies' information usually exists in several places. Haataja (2005) explains that knowledge intensiveness in business means that knowledge has there a very important meaning. Company´s products, processes or services can all be knowledge intensive. Knowledge intensive work requires capability of creative problem solving and abstract thinking, and to be successful, complicated information processing and interactive communication are needed. (Haataja 2005, p. 10.) Knowledge intensive business services (KIBS) mean services, which base highly on information and knowledge, and are offered to other companies (ibid. 2005, p. 12). Kemppilä & Mettänen (2004, p. 14) present the classification of information and knowledge intensive service sector, made by Tekes (2002), where the three dimensions are 1) knowledge intensive business services, 2) technology enabled new services and

technologies necessitated to intensify services, and 3) services integrated to products and production. The knowledge intensive service sector is outlined in Picture 2.8.



Picture 2.8. Information and knowledge intensive services (Tekes 2002; see Kemppilä & Mettänen 2004, p. 16).

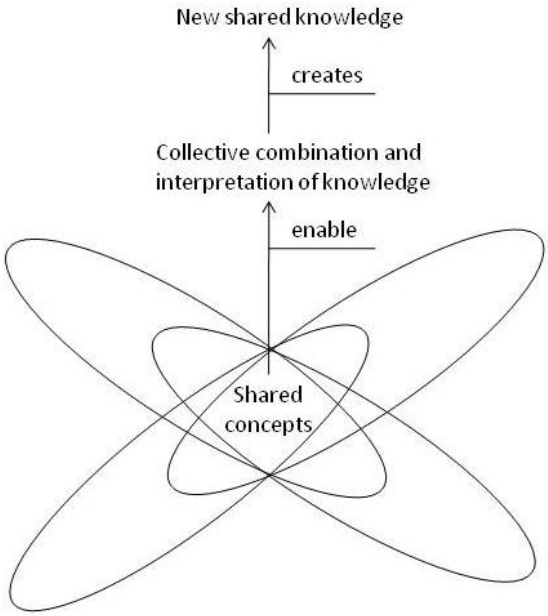
According to Haataja (2005) there are many different descriptions for KIBS, but they all have some features in common: KIBS companies produce innovative solutions to their account companies, and they use tacit knowledge professionally in their process to produce the service. The know-how requires refined information and knowledge management. (Haataja 2005, p. 15.) KIBS companies will have increasingly more significance in developing new innovations in the future (Maula 2007, p. 3).

Nonaka & Takeuchi (1995) say that continuous innovation is a requirement to be successful. One way is to look outside and into the future, anticipating changes in the market, in competition, technology, or product. For example, Japanese companies succeeded in innovating when they had to operate in uncertain markets, because they were constantly forced to make their existing advantages obsolete. Uncertain times make companies to seek knowledge from outside the organization. The most important thing in succeeding is that knowledge, which is accumulated from outside, is shared widely within the organization, stored as part of the organization´s knowledge base, and utilized by those engaged in developing new products and technologies. (Nonaka & Takeuchi 1995, pp. 5 - 6.) So, increasing intelligence in organization depends greatly on its ability to share the acquired knowledge and intelligence between its members. This is

evident especially in KIBS organizations, which existence bases on utilizing the accumulated knowledge of its members.

2.3.1. Sharing knowledge

So, to increase overall intelligence in an organization, it has to be shared among persons. According to Choo (2006) the ability to share information is an important part of information gathering process. The flow of information often takes place in social networks, which are built on trust and cooperation. (Choo 2006, p. 177.) The process which bases on social intercourse between persons causes its own requirements, for example different personalities, cultural aspects, and an ability to confident in others form significant meaning when talking about people. Kettunen et al. (2007, p. 131) mention the significance of shared concepts across unit and national boundaries facilitating the creation of shared knowledge, which is needed to be able to cooperate effectively. Picture 2.9 shows that shared concepts enable collective combination and interpretation of knowledge, which on its part creates new shared knowledge.



Picture 2.9. Shared concepts enable organizational learning (modified from Kettunen et al. 2007, p. 131).

Kettunen et al. (2007) continue that there is a paradox with sharing knowledge because it requires already shared knowledge to be effective: language, concepts, and information that are common to the groups of people working together. IT systems cannot substitute geographical proximity because big amount of important knowledge is usually tacit, so it is important to support the mobility of employees. (Kettunen et al. 2007, p. 131.) Sarvary (1999, p. 96), for his part, stresses the importance of information technology, which provides new tools to better build knowledge capital. He mentions

communication and network technologies and relational databases as most important knowledge management systems.

Especially considering KIBS organizations, it is essentially important to collect and share the expertise and experiments of knowledge workers. Today´s organizations are utilizing more and more social media which, according to Lietsala & Sirkkunen (2008), are web services that receive most of their content from the users who voluntarily want to share it, or aggregate the content from other sites as feeds. The sites build on social networks and creativity of the participants, because anyone can be a producer or contribute it some other way. Social media services can be divided into different genres, which are content creation and publishing, content sharing, social network sites, collaborative productions, virtual worlds, and add-ons. Sites can rely only on social media or adapt just some of the features, like tags, wikis, blogs, and personal profiles, so they might overlap into several genres. Companies can use social software to outsource or crowdsource to support their business. The utilization of social media is not just to gain content but it also helps in trying the open innovation approach in practice. (Lietsala & Sirkkunen 2008, pp. 13 - 14.) Crowdsourcing is an online, distributed problem-solving and production model; a company takes a function once performed by the employees, and outsources it to an undefined, large network of people. However, it is not an open-source practice, because problems solved and products designed by the crowd become property of the companies. (Brabham 2008, pp. 75 - 76.)

Lietsala & Sirkkunen (2008) have found five main characters in social media sites:

1. There is a space to share the content.
2. Participants in this space share, create or evaluate all or most of the content by themselves.
3. Site is based on social interaction.
4. All content has an URL to link it to the external networks.
5. Actively participating members of the site have their own profile page to link to other people, to the content, to the platform, and to the possible applications.

Common features are also that the site feels like a community, people contribute it for free, and there is a tagging system in the site that allows categorizing the content. (Lietsala & Sirkkunen 2008, p. 24.)

One application of social media is wiki, which is a website that allows people to edit or contribute content in a collective way. Wikis are good for collaborate working; they work well for all projects or tasks which could benefit from the possibility to edit content simultaneously. Wikis can for example replace the intranet of the company, and they can also ease up disseminating information on a specific field to all related stakeholders of the company. (Lietsala & Sirkkunen 2008, p. 34.) The social media

application, which enables the foresight process in this study´s case company, is called Trendwiki.

In content sharing sites people can interact at least in five ways: in creating, sharing, evaluating, socializing, and experiencing (ibid. 2008, p. 46). Von Hippel (2005) explains that information communities are communities or networks of individuals or organizations that encounter around a collection of information that is open to all on equal terms. Information communities may have an increasing impact on the economy and the landscape of industry; information networks can store content that participants freely reveal and make available for free downloading, as is the case for user innovation networks. Information networks can link information seekers and information holders rather than actually only storing information. (Von Hippel 2005, pp. 165 - 166.) The utilization of this kind of information, and especially innovation networks, is ever increasing in today´s business. It can be very useful to bring the view of common consumers into the company´s business functions. Ideas generated in these communities might be very extraordinary, innovative, and in the end profitable; capturing those when they are not common knowledge might bring competitive advantage to a company. Or at least those can refresh the good and old assumptions and traditional ways to think.

3. FORESIGHT CHALLENGING CURRENT ASSUMPTIONS

This chapter defines the main idea of foresight, which should not be thought as forecasting but as a method to anticipate the possible futures. First, the nature of weak signals and the formation of trends are described. Then, the concept of foresight and its characteristics are handled in a general view of future research, and methods used in it.

3.1. Interpreting hidden signs behind change

In the 21st century business, it is no longer possible to concentrate only on the current moment. Innovating and utilizing creativity is simply indispensable. When the world changes rapidly, also the companies need fast reaction. The most important thing is proactive anticipating, which means not satisfying always to react, but to make future reckoning and visible. (Solatie & Mäkeläinen 2009, p. 17.)

What causes these changes in the environment? According to Fleisher & Bensoussan (2007) there are forces in every situation that cause things to remain as they are or to change. The term force refers to the broad cluster of events, state of affairs, or trends that impact the future. Forces that push toward change are called driving forces, and forces that resist change are called restraining forces. These forces are quite broad in scope, long-term in nature, and associated with uncertainty as to their evolution. These forces must be understood and identified in order to plan appropriate strategies for change. Normally the companies´ ability to deal with these forces restrict to recognizing them and understanding their effects, although they indicate the external factors that likely have the greatest impact on a company in the near future. (Fleisher & Bensoussan 2007, pp. 329 - 330.) Halliman (2001) sees that environmental forces include actions, opinions, and expectations of the entities that can influence an industry. An environmental force is an event that affects to that whether the organization can or cannot achieve its business objectives. Key environmental forces can be for example governmental, regulatory, political, technological, social, economic, and competitor forces, which should be assessed for dominance to adjust accordingly and to keep on with the competition. (Halliman 2001, pp. 5 - 6.) These forces can also be called as trends or megatrends, which will be described later on in this chapter.

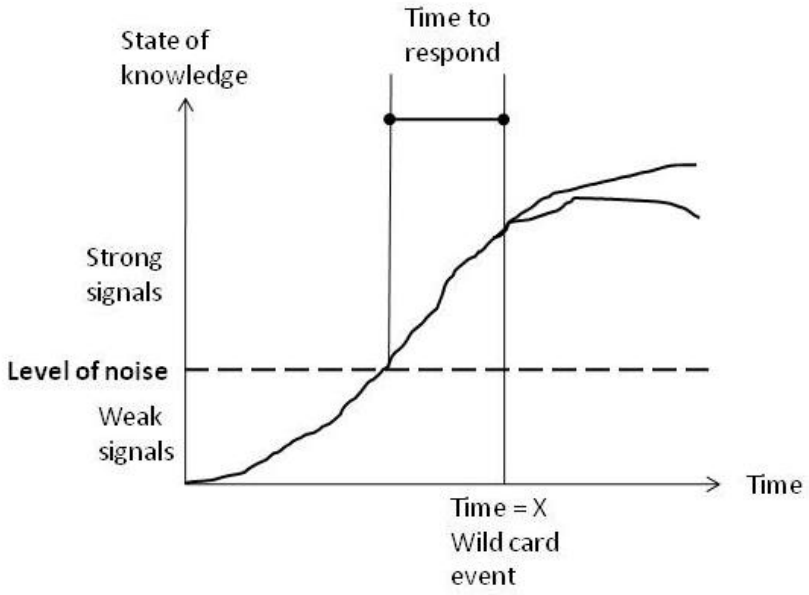
According to Cornish (2004), it is possible to anticipate some changes in the future because of the continuity of the past where much remains constant and thus some patterns can be identified. But less-predictable, nonlinear and discontinuous change

arises from the fact that we live in a world of interacting systems of chance and chaos. (Cornish 2004, p. 48.) Changes that do not have a notable history are the ones which are most difficult to exploit but most rewarding if you can.

3.1.1. Weak signals in the air

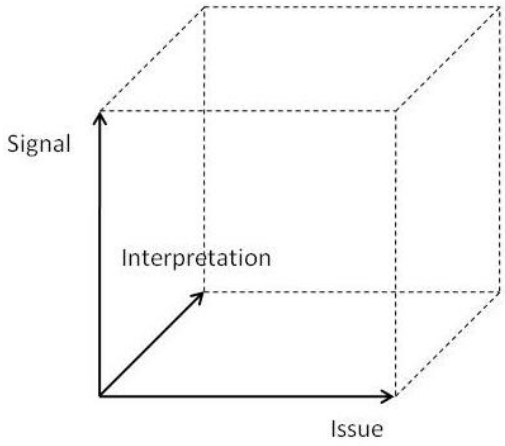
Companies seem to keep on ignoring changes in the environment, which might cause missing of opportunities and threats. According to Hiltunen (2006), surprises caused by changes in the environment could be anticipated in advance by collecting and analyzing weak signals. Weak signals are currently existing, seemingly insignificant small issues, which could provide us hints of the possible events and trends in the future. In the first place recognizing weak signals help to foresee gradual changes, and above all to react to them in time. Afterwards, with hindsight, it is possible to point out the clues and signs in the past that have been there hinting about future trends. (Hiltunen 2006, p. 62.) Coffman (1997) defines weak signal as: 1) an idea or trend that will affect how we do business, what business we do, and in which environment, 2) new and surprising from the signal receiver's viewpoint, 3) sometimes difficult to track among noise and other signals, 4) possibly a threat or an opportunity to an organization, 5) often scoffed at by people who think they know better, 6) usually have a substantial lag time before maturing and becoming mainstream, and therefore 7) represent an opportunity to learn, grow and evolve.

Mendonça et al. (2004) see weak signals as information on potential change of a system toward an unknown direction. They can be seen as indicators of, and thus a means to anticipate future wild cards, which is a term to describe discontinuities, disruptive events, surprises, and unprecedented developments; phenomena with low probability of occurrence but potentially high impacts and strategic consequences if they actualize. Wild cards are turning points in the evolution of a certain trend. Not all wild cards can be anticipated, even though there usually is an abundance of weak signals “in the air” before a wild card event happens. It is also possible that a weak signal remains a weak signal and never either becomes a strong signal or develops into a real wild card. (Mendonça et al. 2004, pp. 203, 205, 208.) Picture 3.1 outlines the difference of a wild card event and weak and strong signals in a time frame. If a company is able to act reasonably before a wild card event, it can win competitive advantage compared to others, which have not been able to see any signs of the forthcoming early enough.



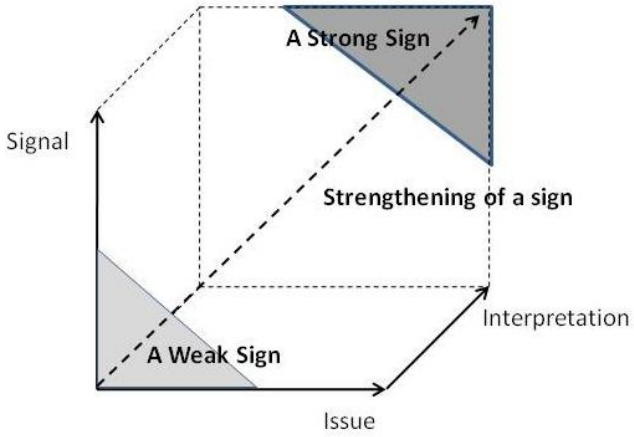
Picture 3.1. Wild cards and weak signals in a time frame (modified from Hiltunen 2006, p. 65).

It would be useful to be able to analyze if we are observing weak signals, i.e. some hints of the future trends, or something stronger that already really exists widely. The locality can affect to that whether a signal is seen as weak or strong, because some phenomena might be evident in some places while it is just growing in others. Internet diminishes the significance of the physical location but brings out the difference between phenomena happening virtually or located to some physical place. Hiltunen (2008) has developed a model of the future sign (see Picture 3.2), which is a general model that can be used to clarify the concept of weak signal and to evaluate its characteristics. The future sign composes of three dimensions: the signal, the interpretation, and the issue. The signal axe shows the number and/or the visibility of signals. The issue axe describes the diffusion of the phenomenon, for example the number of events related to the future sign, and the interpretation axe express the receiver´s understanding of the future sign´s meaning, for example the importance of the sign for an organization in the future. (Hiltunen 2008, pp. 249 - 250.)



Picture 3.2. Three dimensions of the future sign: signal, interpretation and issue (modified from Hiltunen 2008, p. 250).

According to Hiltunen (2008, p. 254) the signal and issue axes represent the objective two-dimensional aspect of the sign, because the number of signals and events are possible to count, and thus the interpretation of the sign is the only subjective dimension being related to the receiver´s interpretation of the sign. Picture 3.3 shows that when you move along the axes, you can see the strengthening of a sign; if there is a rise in at least one of the axes, a sign strengthens.



Picture 3.3. Strengthening of the future sign (modified from Hiltunen 2008, p. 255).

Mannermaa (1999, p. 90) claims that the power of weak signals are before they strengthen; when it is just us who observe it first, understand its real meaning, and act accordingly already when others are still rejecting it. Hiltunen (2008) says that the duration of the weak sign is the time from its first appearance to its becoming a strong sign or vanishing. In practice, though, it is difficult to draw a line between a weak and a

strong sign. The duration of each dimension is different: a signal may exist for a quick moment, or continue existing for a long period but less visibly. The issue and its unit, event, can last for a short or a long time and many events can exist simultaneously. The duration of the interpretation dimension is seen very difficult to determine and thus the duration of the weak sign is dominated by the first two mentioned dimensions. (Hiltunen 2008, pp. 253 - 254.) In general, whether the signal is weak or strong, it is most important to be able to observe it, and anticipate its possible meaning in the future.

Large amounts of information reaching us every day is filtered and ignored, and that of course excludes also essential information among the irrelevant one. According to Day & Schoemaker (2005), when assessing the environment, managers should separate signals from noise because it is not useful to assess each weak signal, but also admit that they are missing important ones, and try to seek insights about those signals throughout the organization. It should be figured out, what important signals are rationalized away, as people have a tendency to ignore signals that are in a contradiction with their preconceptions. For example the emphasis could be focused on events outside the organization´s main focus area because those might affect to it also in the long run. (Day & Schoemaker 2005, p. 137 - 138.) Recognizing company´s physical filters e.g. in information systems, as well as mental filters of the personnel, which are preventing the achievement of relevant information from the environment, would help to make the information flows more transparent and thus manageable.

The width of a filter means the openness to different types of ideas or signals. A wide filter provides a lot of signals, also irrelevant ones or noise, which might cause problems in this time of information overflow. (Ilmola & Kuusi 2006, p. 913.) Too tight filter though might prevent reaching very relevant signals. Because it is people who embrace the information, the most important filters must be mental ones. According Ilmola & Kuusi (2006), the width of the filter can be increased by the open scope of the briefing of the signals. That means the observers´ mental models for collecting and processing signals are not predefined and thus are more diverse. The study shows that open questions do not affect to the diversity in the outcome but the number of observed signals is larger. It also showed that if the social interaction is used for processing signals, it might reduce the width of the filter, because individual meanings tend to synthesize into common meanings in conversations. (Ilmola & Kuusi 2006, p. 914, 918.) It is important to find a balance between allowing and filtering signals.

3.1.2. Signals getting shape

Organizations without an explicit or guided process of information gathering filter the signals most. The process starts by picking up signals from the environment, continues by identifying patterns and regularities among the data, and finally compresses the information into internal models about the business environment. It is important to be

flexible in scanning and filtering complex and sometimes contradictory information from an unpredictable environment. (Ilmola & Kuusi 2006, p. 910, 913.) Organizations often try to make too much sense of a naturally noisy and ambiguous environment, even though it would be better to develop multiple views of it (Day & Schoemaker 2004, p. 139). The complexity and irrationality corresponds the real diversity of the world.

When many weak and vague signals can be seen forming an entity, one can talk about trends, which according to Cornish (2004, pp. 78, 80) are long-term changes that indicate conditions we might have to deal with in the future, and which may affect us in innumerable ways even if we are unaware of them; compared to events, which are changes that occur quickly and usually do not have that significant effects. Fleisher & Bensoussan (2007, p. 396) describe more or less the same with the term of indicators, which are factors, events, lack of events or actions that present a significant clue about the nature of present circumstances, and suggest an eventual end result of a series of events. Solatie & Mäkeläinen (2009) summarize that weak signals tell where the world might be going. First, there are some solitary events in view relating to a new phenomenon; later on the phenomenon may spread, and it might become self-evident megatrend. There have been signals of these new phenomena already years before the phenomenon itself is born. (Solatie & Mäkeläinen 2009, p. 193.)

Weak signals might form trends, which can evolve to megatrends. According to Mannermaa (1999) megatrends, i.e. large waves of development usually refer to phenomenon or an entity of many phenomena, which can be seen to have a common direction identified by already actualized development lines, which are thought to continue parallel also in the future. It is possible to speak of megatrends when the phenomenon is perceived wide enough and it is understood that a megatrend itself can include different phenomena, alternative orientations, and surprises. These phenomena should though constitute an entity which is coherent enough to be called as a megatrend. (Mannermaa 1999, p. 85.) Trends can be analyzed by identifying their nature, causes, speed of development, and potential impacts (Cornish 2004, p. 81). The duration of trend´s life cycle varies depending on its type and the pace of the environmental change. According to Tikka (2009, p. 21) macro trends usually have about 10 years´ time frame, socio-cultural trends more or less five years, and behavioural trends less than a year. So, one has to be especially quick to be able to exploit behavioural trend related phenomena earlier than others.

According to Cornish (2004) using trend information wisely in decision making can be very valuable, though it should not be the only consideration. Understanding trends helps companies to recognize change and provides an invaluable background for making practical judgements about their goals and strategies. (Cornish 2004, p. 90.) Also Ilmola & Kuusi (2006) say that observing the periphery incidents and early, unstructured data helps to avoid strategic surprises or to utilize fast unexpected

opportunities, and it is one of the key concerns in strategic planning, but it is not enough anymore. The companies in turbulent environments need to develop and employ systematic methods to scan the business environment in purpose of finding weak signals of early opportunities, and integrate this early information into dynamic vision of the company to achieve and maintain competitive advantage. (Ilmola & Kuusi 2006, p. 909.) According to Coffman (1997), we talk about tracking trends but more generally we are interested in spotting non-linear, hard predictable ideas before they reach mainstream recognition.

3.2. Foresight is not forecasting but anticipating

The future is urgent because it is all we have left (Cornish 2004, p. 213). But, we cannot forecast the future. To make plans based on guesses and estimations is never completely reliable, but it is all we can do. However, there are ways to anticipate, and thus prepare wisely, for what might come, and that is the main idea of utilizing foresight in support of business. Prahalad & Krishnan (2008, p. 84) say that foresight is of value, not hindsight, and foresight is a result of understanding, through structured and unstructured data and the unfolding of competitive dynamics.

3.2.1. Intentions to handle the forthcoming

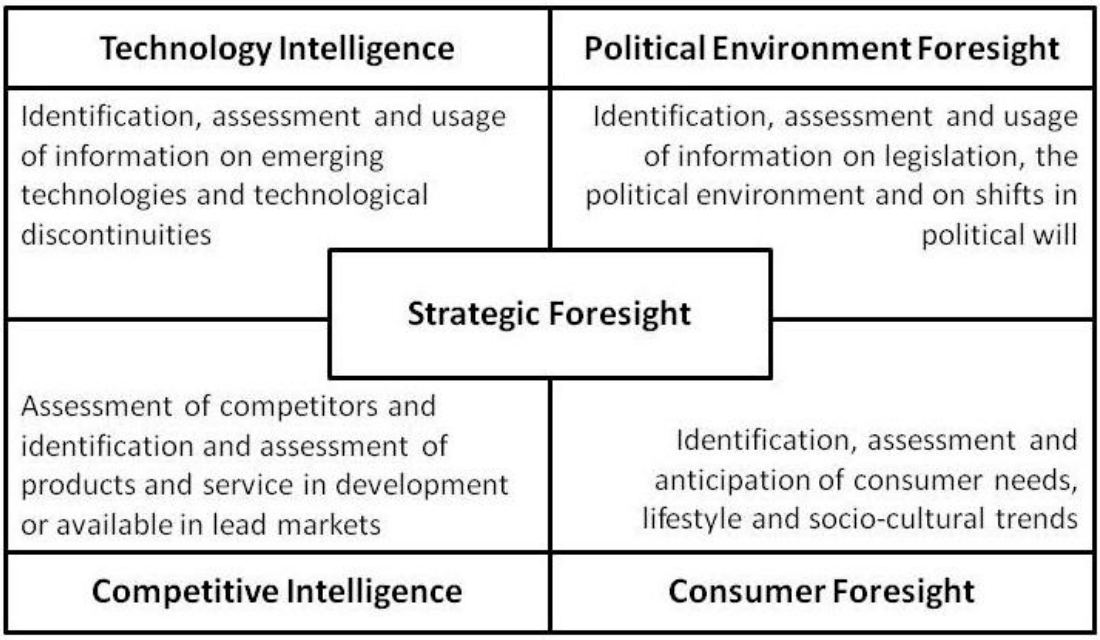
The radical growth in technology development, the rate of change, and the intensifying of the competition in the market have made it crucially important to the competitiveness of business and national economies to look to the future (Fleisher & Bensoussan 2007, p. 360). According to Bell (2003, p. 2) the aim of the futures studies is to help to prepare for the unpredictable. Cornish (2004, p. 213) presents the term futuring, active exploration of future possibilities, which primary goal is to develop foresight. He also stresses that futuring does not aim at predicting the future but to improve it, especially to know and anticipate opportunities and risks we may face, and which we really should be ready for (Cornish 2004, p. 65). Kettunen et al. (2007, p. 149) even say that there are many possible futures, and the decisions we take and choices we make now can shape or create the future. Mannermaa (1999, p. 19) also says that future should not be seen as one deterministic Future but as a group of futures, which forms a spectrum of choices that are intended to survey by different methods.

According to Cornish (2004, p. 213) foresight can be defined as an ability to make good decisions not only regarding present moment but in the long run. If organizations adopt an open attitude toward environmental signals, they can exploit those signals´ ambiguity, redundancy, or noise, to improve their own knowledge systems (Nonaka & Takeuchi 1995, p. 78). Conceptually, foresight systems as trend and scenario analysis, Delphi studies, and weak signal analysis, can be seen as a part of organisational intelligence, which serves knowledge creation in an organisation (Mendonça et al.

2004, p. 209). Cornish (2004) claims that continuity makes futuring possible, but technological and social changes are coming faster than ever. We will have difficulties in making right decisions in time if we do not do more futuring. Good decisions depend on good foresight. Rapid change offers many opportunities for those who have a future-oriented attitude, and also know how to explore those possibilities. (Cornish 2004, pp. 211 - 212.)

Some may think that trends taking shape today are just reflections from the history. For example Cornish (2004) says that trends can give us a bridge from the past to the future, and by using trends we can try to convert knowledge of what has happened in the past into knowledge about what may lie ahead. The longer a trend has lasted, the more certain can be assumed that it lasts a bit longer. We cannot know even the present world just by being in it right now, but only an outdated image of the past world. (Cornish 2004, pp. 37, 41.) However, it is different to consider possible future trends which have only some hints existent today and no recorded history in the past. And these new and surprising trends are those, which will have a significant impact in the future. So, to differentiate from forecasting, i.e. predicting the development of a known trend or issue, the term strategic foresight (SF) is used to emphasise the objective of identifying new emerging issues with no past data available (Rohrbeck & Gemünden 2008, p. 2). Fleisher & Bensoussan (2007) claim that for an analytical output to be insightful, intelligent, and valuable to business decision makers, it needs to be future-oriented, accurate, resource efficient, objective, useful, and timely. Relying on the past as a predictor of the future can be dangerous, especially because innovation, science, and technology factors can disrupt a market very quickly. Early warning, foresight, prescience, or prevision cannot be adequately generated by using historical data that are focused entirely on the past. The intelligence resulting from an analyst´s work must be future-oriented, considering both deeply and broadly what might happen. (Fleisher & Bensoussan 2007, pp. 80 - 81.)

Strategic foresight consists of different elements; it uses weak signals from science and technology, as well as political, socio-cultural, and competitive environment (Rohrbeck et al. 2007, pp. 3- 4). The different elements of strategic foresight are outlined in Picture 3.4. Foresight can be seen channelling smartly the knowledge which already is available (Rohrbeck & Gemünden 2008, p. 6).



Picture 3.4. The elements of strategic foresight (modified from Rohrbeck et al. 2007, p. 4).

The overall objective of corporate foresight is to help identifying 1) emerging future opportunities and risks, 2) ways of taking an advantage of the identified opportunities, and 3) measures to reduce or cope with the identified risks (Kettunen et al. 2007, p. 149). According to Rohrbeck & Gemünden (2008) the best-practice companies have a balanced mix of technological, political, competitor and customer scanning activities. They also include different time horizons: using both data from operational units for the short term future and also own scanning and interpretation systems for investigating the mid- and long-term future. Best-practice companies use also various means of sources, which are not accessible to their competitors because it would not bring competitive advantage to use only easily accessible sources. (Rohrbeck & Gemünden 2008, pp. 4 – 5.) It would be essential to develop indications and warning analysis systems that can separate signals from the noise in a mass of incoming data (Fleisher & Bensoussan 2007, p. 401). Though, the implementation of effective foresight systems remains still very limited (e.g. Day & Schoemaker 2005).

Fleisher & Bensoussan say that companies can be proactive as opposed to simply defensive or threat-reactive ones, which is important in staying ahead of rivals. The indications and warning analysis gives a company a better understanding of the current and potential changes in the environment, and challenges current wisdom by bringing fresh viewpoints into the decision-making. However, it is a complicated task to interpret events or trends that will manifest them in the future. Conservative mindsets of analysts or decision makers can weaken the exploitation of the analysis, and there is also a risk that decision-makers act too slowly on warnings or that the analyst has provided poor

judgements. (Fleisher & Bensoussan 2007, pp. 393 - 395.) Day & Schoemaker (2005) suggest that it is useful to find maverick employees who are not usually dealing with a certain topic but who have insights about the periphery. As well informed people in or outside the company could break the conventional thinking about the certain business. When trying to reveal weak signals, managers could also form a team to plan how they would attack their own business as a new market entrant to figure out possible future impacts. (Day & Schoemaker 2005, p. 140 - 141.) Also according to the investigation by Rohrbeck & Gemünden (2008), many foresight activities become more complicated by the foresight practitioners who are too deeply involved in an investigated field. It is better to have little knowledge about the topic; deep knowledge about it at hand can be an obstacle for foresight. In a complex and fast-moving environment it is more important that foresight practitioners have strong internal and very strong external networks. (Rohrbeck & Gemünden 2008, p. 6.)

Personal characteristics of the foresight practitioner affect a lot to the results, already from the beginning of the process; the observation and selection of signals depend on the mental models of a person, as well as interpreting and analysing those. Foresight needs visionary, open-minded people to get the most out of it. To guarantee fresh and unbiased view, many persons with different backgrounds should be included in the process. The most challenging obstacle for dissemination of insights from foresight activities is the lack of willingness to share across functions, so creating trust and motivating ongoing information sharing on multiple levels is important (Rohrbeck & Gemünden 2008, p. 7). To recognize the many ways to interpret the signals in the current environment, companies should also form unthinkable, positive and negative scenarios of the events that are seen very improbable and unlikely among everybody, because they are easily dismissed as not worth considering (Day & Schoemaker 2005, p. 146) and thus might cause too big surprise if they actualize.

Foresight is a part of the field of future studies; the term foresight refers to an ability to think ahead and envision possible future development trends. Proper foresight is a managed process. A big challenge is that there is no reliable way of doing foresight, because significant changes are usually influenced by a number of interacting factors, and too narrow scope can skew the results in an unexpected way. (Kettunen et al. 2007, pp. 148 - 149.) Mannermaa (1999) reminds that the deepest interest of the future research is instrumental; the aim is not to search for the truth of the future, but to affect in decisions which are made today. The future is not being born because of some external powers, but it is created by the actions of individual persons and the communities they form, like companies. (Mannermaa 1999, p. 22.) In general, foresight can be seen as a modern, current and flexible variant of traditional futures studies, which in turn have more specifically defined survey methods. Terms and methods are used crosswise, which indicates the relative novelty of the concept of foresight.

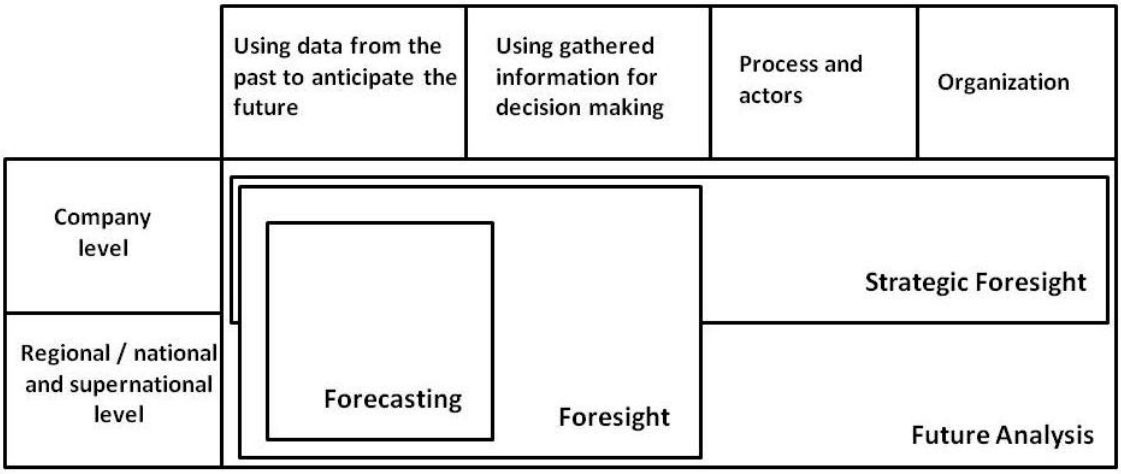
3.2.2. Methods to survey the futures

According to Fleisher & Bensoussan (2007) many companies suffer from inadequate recognition of emerging threats, particularly those of low probability but potential great risk. They lack the processes and systems for maintaining continuous data and information gathering and tracking capabilities, even for the most critical areas. It can take many years from the analysis systems to develop and become effective. A four-step process for performing analysis is: establishing the set of indicators, establishing the meaning behind the indicators, validating and ranking the indicators, and determining alternative courses of action. (Fleisher & Bensoussan 2007, pp. 395 - 396.) According to Tikka (2009, pp. 20 - 21) it is important not just to inspire with trends; scattered information of latest trends is often confusing and hard to utilize, but to use a framework to simplify the change, and to clarify the relations between trends.

The modern approach to the future study includes an effort to discover and, if possible, to control the future. The study field aims to demystify the future, to make the futurists´ methods explicit, to be rational and systematic and, where relevant, to base the results on the empirical observation of reality. The future studies discover or invent, examine and evaluate, and propose different futures. The contribution is prospective thinking with which futurists aim to contribute the current and the future generations. Futurists also use creativity and intuition in exploring alternative futures – the possible, the probable and the preferable – and thus the logic of the results can be tested by open discussion and intellectual debate. (Bell 2003, pp. 5, 73.) According to Cornish (2004) thinking about the future should be both realistic and creative. Very complex realities should be simplified for not becoming blind for those and dealing with different potential realities with major opportunities or risks should be comfortable. Creativeness is needed to change the normal thinking patterns we are used to. (Cornish 2004, p. 64.) One purpose of futures studies is the need to improve the human decision making and the effectiveness of human action by means of more self-conscious and adequate futures thinking (Bell 2003, p.70). Futurists intend to teach the insights and methods of futures studies so that decision makers could make more effective decisions, and thereby improve their individual lives as well as the public good (ibid. 2003, p. 75).

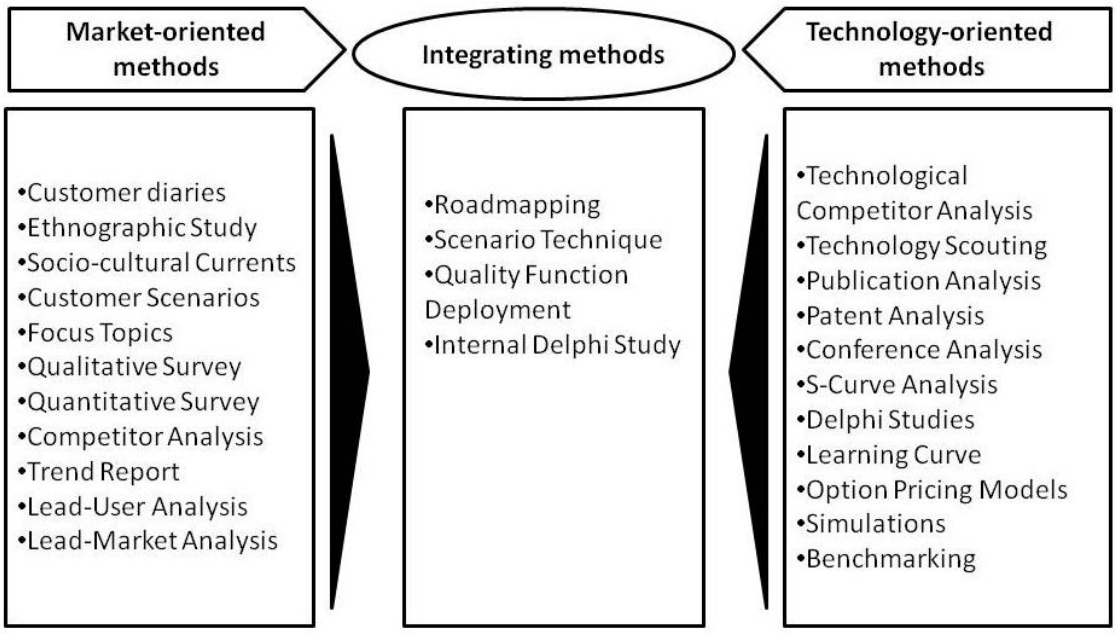
Futurists can make predictive statements but they cannot be sure of the accuracy of those. They should consider many alternative possibilities for the future with different conditions. They must also evaluate responsibly possible and probable futures with some scale of values to judge how desirable different futures will be. (Bell 2003, p. 107.) There are no facts about the future; future is nonevidential and cannot be observed. There are only facts about the past, present options, and present possibilities for the future. (ibid. 2003, p. 148.)

Rohrbeck et al. (2007, p. 3) summarize the field of future studies in Picture 3.5. The research has evolved over time to include an increasing number of aspects.



Picture 3.5. Scientific classification of research on future studies (modified from Rohrbeck et al. 2007, p. 3).

In the futures field there is considerable methodological diversity within different futurists, but methods do not inherently produce good or bad work, because especially in this field the results are very dependent on the skills of the researcher (Bell 2003, p. 240 - 241). There are many methods to survey the futures, and they differ by their sense of time horizon and final purpose. According to Rohrbeck et al. (2007, p. 6) the methods of strategic foresight can be differentiated according to the areas in which they are applied; market-oriented methods, technology-oriented methods, and integrating methods (Picture 3.6).



Picture 3.6. Methods of strategic foresight (modified from Rohrbeck et al. 2007, p. 7).

The integrating methods in the middle of the picture 3.B are a good means to overcome the barriers between market and technology perspective, as well as between strategic, tactical and operational planning (Rohrbeck et al. 2007, p. 7).

It is reasonable to present some common methods of future research. By the *extrapolation of time series* the future value of a variable is estimated by its own value at earlier times (Bell 2003, p. 250). Fleisher & Bensoussan (2007) present trend extrapolation and growth curves as methods to predict likely developments in the future using information from the past. Trend extrapolation plots statistics onto a graph against time and fits roughly a straight or curved line to the points plotted. This method aims for a long-term forecast and relies on an assumption that past drivers of change will continue to influence in the future and ignores short-term fluctuations in trends. Growth curves follow an *s-curve*, which illustrates the embryonic, growth and maturity stages of a product life cycle, i.e. the gradual process of a new invention to improve until the limit of the technology is approached. (Fleisher & Bensoussan 2007, pp. 367 - 369.) These methods are highly based on the historical facts. One futures research method is *survey research*, where the researcher collects data simply by asking future related questions from individuals (Bell 2003, pp. 257 - 258). Cornish (2004, p. 79) calls this method polling, and one specification of this is *Delphi polling*, which is one of the most known futures research method that uses carefully structured procedure to generate more accurate forecasts.

The Delphi technique bases on expert opinion and uses a consensus of opinion to minimize the effect of individual biases (Fleisher & Bensoussan 2007, p. 366). Bell (2003) explains that the Delphi method aims to explore and predict alternative future possibilities, their probabilities of occurrence, and their desirability by tapping the expertise of respondents. The Delphi method includes a research and communication process with at least eight steps:

1. Specifying a topic or subject, which possible, probable and preferable futures are investigated.

2. Constructing a questionnaire as a tool to collect data.

3. Selecting some people, usually experts, whose opinions about the topic are investigated.

4. The initial measurement of the opinions of the respondents.

5. The preliminary organization and summary of the data from the previous.

6. Communicating about the results as feedback to all respondents.

7. A re-measurement of the respondents´ opinions which might have changed based on the earlier results including others´ supporting comments for the opinions.

8. Analysing, interpreting and presenting the data and writing a final report.

The process can include more steps if some parts of it are repeated several times. This method can be seen objective and scientific if it is carried out correctly, concerning various research steps, but the data is basically based on the subjective beliefs and judgements of the expert respondents. *Cross-impact analysis*, showing the interdependencies of different events, may be used to study the contingencies with the results of the Delphi method and other forecasted events or trends. (Bell 2003, pp. 261 - 265.) According to Cornish (2004) it is very important to report the responses to participants anonymously so that it cannot affect to the answers. The advantage of the Delphi method is its effectiveness in improving and clarifying the collective judgement of experts, but the disadvantage is that it is time-consuming, often expensive and easily misused. (Cornish 2004, p. 67.) Added to these, Fleisher & Bensoussan (2007) present *morphological analysis* which uses information about current technology in purpose to find new applications for existing inventions. It is called as organized invention, as it starts with determining a goal which is wished to achieve, continues by systematically gathering information about all possible technologies that might achieve a particular purpose, and then displays this information in some sort of graphical form, like a list or matrix, that highlights any gaps. These gaps may represent opportunities for developments, and on the contrary, it is possible to find areas which have no potential at all. (Fleisher & Bensoussan 2007, pp. 362, 369.)

Bell (2003) claims that the end product of all the methods of futures research is basically the same: *scenario*. It can be a way of summarizing the results of the research. Typically it is a story about different possibilities of the future, includes goals and values, and also evaluates alternatives and their desirability. It often has a description of available possible choices of human action and anticipated outcomes of it, as well as implicit or explicit recommendations about what choices and actions should be made now to affect to the most desirable future. No matter if it is based on qualitative or quantitative research, fact or fiction, particular or universal information; scenario gives methodological unity to the field of futures studies. (Bell 2003, pp. 316 - 317.) In brief, scenario is an outline of plausible events (Halliman 2001, p. 120), a description of series of events that proceed from present to a certain time in the future (Kettunen et al. 2007, p. 159) logically one step following another (Mannermaa 1999, p. 57). It is important to remember, though, that all scenarios are uncertain and indicative (Kettunen et al. 2007, p. 162). The nature of scenario working is anticipating, but even

more it intends to affect what kind of shape the future will take for example considering one company; the aim is to provoke changes and affect to the developments by the own actions of the company (Mannermaa 1999, p. 62).

According to Fleisher & Bensoussan (2007, p. 361) foresight studies are usually undertaken by national governments to identify and encourage the development of desirable technologies, and thus may play a role in developing the national economy by luring international research and industry firms to set up for business in particular nations. Kettunen et al. (2007) say that the problem with many future studies is that they concentrate too much on macro-level variables and processes, instead of increasing the decision-makers´ understanding of the implications for their own business area. The key issue is to anticipate changes in their certain business. So, links and influence mechanisms between different macro and micro-economic factors need to be searched for and established whenever possible. (Kettunen et al. 2007, p. 151.) Some see that deriving trend knowledge form readily analyzed reports can be defined as foresight. But information in a report can be seen already as old, and thus cannot be utilized as capturing the early bird´s information. More commonly foresight is seen as a process, which utilizes very current, multidisciplinary and vague signals and observations from all over the business environment, analyses those with expertise and skill, and produces a visionary view of the forthcoming as an outcome.

4. FROM FORESIGHT TO BUSINESS INSIGHT

This chapter is about transforming the benefits of foresight into business insight. First, some main terms of business are defined, like the importance of correct business model and strategy. Next are described the prerequisites of forming an innovative business model, which utilizes foresight in support of it. The second sub-chapter is about the outcomes of foresight process; first the process itself is described, and then the use of foresight with redefining the company´s strategy is outlined.

4.1. Foresight as a trigger to innovative business

To be really innovative, a company should exploit information about current and possibly forthcoming trends to gain the advantage of being among the first ones to capture the provided possibilities. Maula´s (2005) model of an organization as a living composition used triggers from the environment basically to learn and evolve internally (see Picture 2.1), but it is also needed to observe triggers to start something completely new or innovative as well externally. Foresight is a means to convert these triggers into valuable information and insight to support developing business strategy.

4.1.1. Backbones of business organization

Defining the company´s strategy leads it back to the basics: to think about what it wants to be and how it can succeed. The strategy process itself can help to see opportunities that have not been visible before, and thus lead to a change. In strategic thinking process it is important to question and make choices. Strategy provides guidance to the development of a company´s products and services, business models and operative practices, and also to the daily work of employees. (Kettunen et al. 2007, pp. 48 - 49.) Business model is the core logic by which a firm creates customer value, and by having an outstanding business model and executing it well, organizations take leadership positions and succeed in their industries (Fleisher & Bensoussan 2007, p.119). According to Chesbrough (2006, pp. 63 - 65) business model is a framework to link technical decisions to economic outcomes. The functions of a business model are 1) to articulate the value proposition, 2) to identify a market segment, 3) to define the structure of the company´s value chain, 4) to specify the revenue generation mechanisms, 5) to describe the position of the firm within the value network linking suppliers and customers, and 6) to formulate the competitive strategy of the company.

Nonaka & Takeuchi (1995) claim that the most critical part of corporate strategy is to conceptualize a vision about what kind of knowledge should be developed, and to

operationalize it into a management system for implementation. So, from the viewpoint of organizational knowledge creation, the essence of strategy lies in developing the organizational capability to obtain, create, accumulate, and exploit knowledge. (Nonaka & Takeuchi 1995, p. 74.) According to Chesbrough (2006, p. 70) companies have a dominant logic of themselves, which describes how the world works, and how a company competes there to make revenue. This logic helps to reduce the ambiguity of the surroundings, and also the shared assumptions behind it help disseminate the meaning of the new information to others. But the dominant logic also dominates alternative, possibly better forms of logic; people more likely search for ways to apply the dominant logic to interpret new data, than re-evaluate their current logical approach. Chesbrough (2006, p. 181) continues that the dominant logic of the company´s business model, especially if it has been successful, forms blind spots which are areas on which the company is not likely to focus to find possible future opportunities, so they affect in that where the company´s business model focus the innovation efforts.

Company´s strategy is apparent in the products it introduces, services it offers, processes it follows, and the acquisitions it makes (Christensen 2004, p. 57). A company must develop its strategic plan, which includes business mission, objectives, goals, strategies, and tactics, and focus on it to achieve certain key success factors, which describe what has to be done well to succeed in a given industry (Tyson 2005, p. 6-2). Strategy is the set of competitive decisions and actions made in response to the organization´s environment, and it aims to best position current capabilities and resources to secure competitive advantage over time. An effective strategy clearly defines the company´s goals and objectives, the product or service and markets in which it will compete, the business activities on which it will focus, the value it offers to customers, and the approaches it will use to provide superior offerings to competitors. Strategy must change according to the changing environment to seek out new opportunities, and acquire or develop the requisite resources and capabilities to turn environmental changes into new sources of competitive advantage. (Fleisher & Bensoussan 2007, pp. 140 - 141.) Afuah (2004) presents three generic strategies that companies use to sustain profitability from innovation: block, run, or team-up strategy:

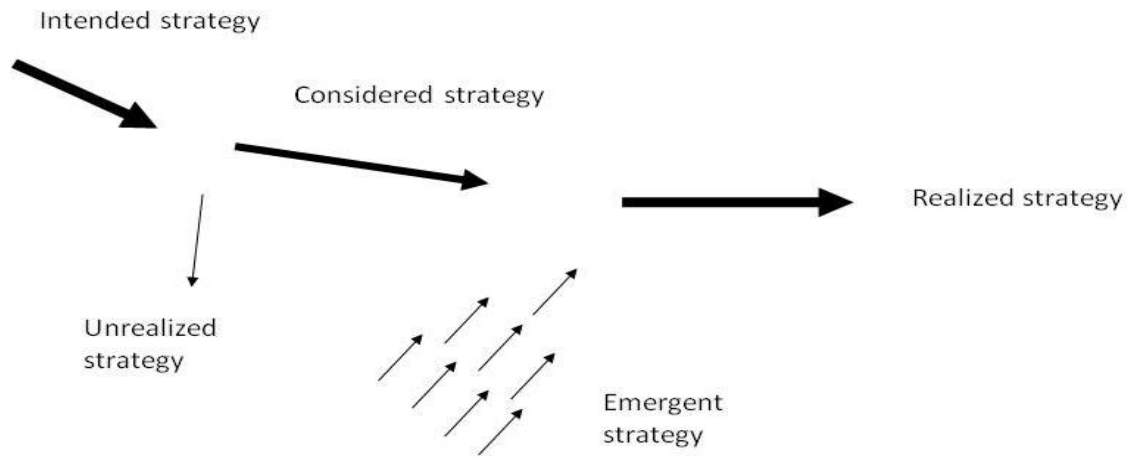
- Block strategy is designed to preserve the inimitability and non-substitutability of company´s valuable resources, and to prevent other companies´ entry into its product market space.

- In a run strategy company performs activities that enable it to keep innovating - offering better value to customers than expected by using new knowledge, and improving its business model. The idea is to stay always one step ahead than others.

- Team-up strategy builds on an idea that one company cannot do alone all that it needs to, so it is better to team up with others. This strategy allows a company to share resources through networking, alliances, acquisitions, or joint ventures.

A combination of these strategies is very commonly used. (Afuah 2004, pp. 158 - 160.)

Haataja (2005, p. 40) presents the idea of intended and realized strategy of Mintzberg (1998, p. 11). Picture 4.3 illustrates that considered strategy actualizes when the intended plans are realized. Intended strategy may also end up to be unrealized. Sometimes emergent, not intended or planned strategy affects to the formation of the strategy, and thus realized strategy is a combination of considered and emergent strategies. So the ultimate strategy is not easily forecasted, especially in the ever-changing business environment.



Picture 4.3. Many factors, that are difficult to forecast, affect to the realization of the company´s strategy (Mintzberg 1998, p. 11; see Haataja 2005, p. 40).

Tyson (2005, p. 2-1) claims that the emphasis today has changed from developing strategies to implementing them, and that is why the strategic decisions must be made on an ongoing basis, which requires a continuous stream of information as well as a process to evaluate it. Haataja (2005, p. 40) summarises that considering knowledge intensive business services (KIBS), the more business environment is changing, the more intangible resources, weak signals, and tacit knowledge are included in the development of innovations, the more interaction there is in the networks; the more difficult it is to realize intended and considered service strategy. Christensen (2004) says that strategy can be dictated from above in a deliberate fashion or it can be allowed to bubble up from below in an emergent fashion. The only thing that company´s managers can know when trying new-market disruption is that they cannot know how market will develop. So the use of an emergent strategy process gives them the flexibility to interpret market signals and adjust strategic actions accordingly.

(Christensen 2004, p. 57.) So, strategy should not be like carved in stone, because situations change and there might raise a need to think differently.

4.1.2. Innovation is needed to create new ways of thinking

According to Haataja (2005) one field of the strategic management process is successful competition. The most important inner competitiveness factors for KIBS companies are the quality of the expertise, wideness and significance of the co-operation form to the company, and quickness and profitability of innovation functions. Innovation can be social, technological, market-oriented, or organizational change related, which creates added value to a company; it bases on the creativity combining information and ideas in a unique way. (Haataja 2005, pp. 23, 52.) Innovation differentiates from an ordinary improvement, because it creates something new in a more profound sense (Kettunen et al. 2007, p. 31). Chesbrough (2006) claims that the only constant thing in today´s world is change, and companies that do not innovate die. Managing innovation is vital for companies whatever the size or industry. Innovation is critical to growing new business, because every current business eventually reaches a limit, as well as to sustain and advance company´s current business. Though, it is also a very difficult process to manage. (Chesbrough 2006, pp. xvii, 185.)

Solatie & Mäkeläinen (2009, p. 30) present seven different types of innovation:

- Product and service innovations,
- Technological innovations,
- Design innovations,
- Marketing innovations,
- Distribution innovations,
- Process and culture innovations, and
- Strategy innovations.

Kettunen et al. (2007, p. 35) for them part present different dimensions for innovation:

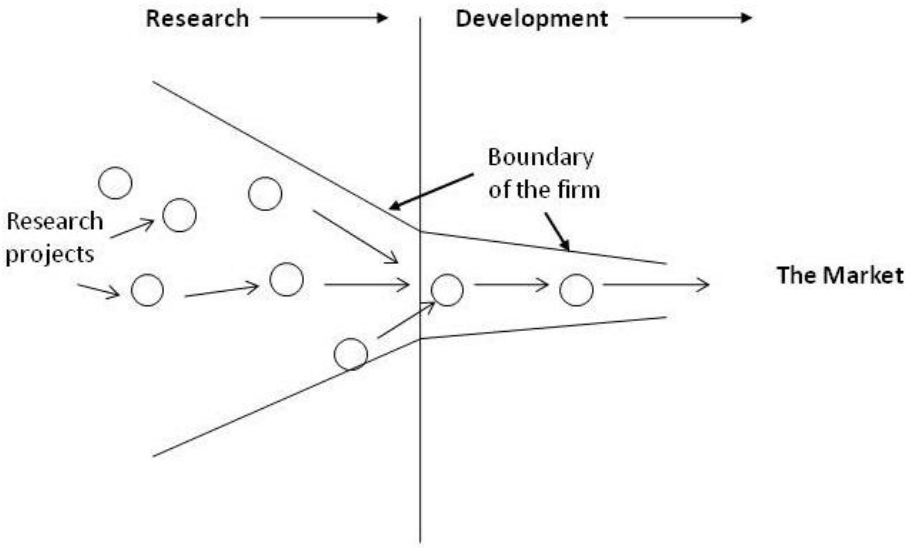
- Incremental, continuous, or sustaining innovation vs. radical, discontinuous, or disruptive innovation
- Local or modular innovation vs. systemic or architectural innovation
- Closed innovation vs. open innovation.

Traditionally innovation has been seen company specific, self-reliant, and having an internally focused logic, which Chesbrough (2006) calls closed innovation. It assumes that innovation requires control to be successful. In closed innovation thinking companies must generate their own ideas and develop, market, distribute, and do all the tasks related to the ideas by their own. Companies must hire the best people to discover

and develop new ideas, get those first in the market, and thus win the competition. The intellectual property needs to be strictly controlled so that the competitors cannot profit from the ideas. Accordingly, the logic cycle of the closed innovation (Picture 4.4) presents that the investments in internal research & development (R&D) lead to breakthrough discoveries, and these discoveries bring new products and services to market. This enables reinvesting more in internal R&D because of increased sales and higher margins, which leads to further breakthroughs. (Chesbrough 2006, pp. xx - xxi.)

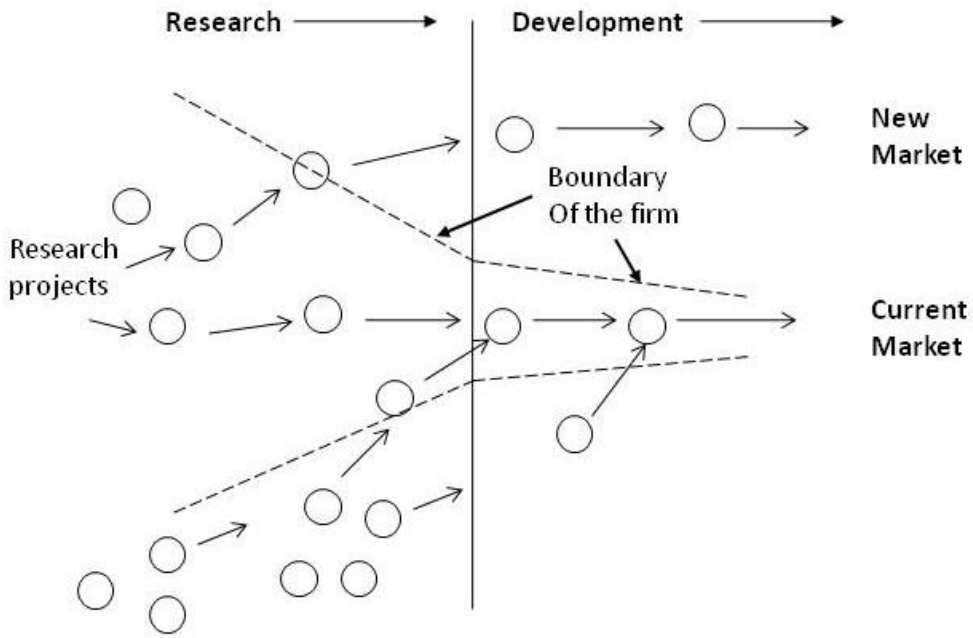
Picture 4.4. The logic of closed innovation creates a virtuous circle (modified from Chesbrough 2006, pp. xxi).

The Picture 4.5 shows the tightly coupled and internally focused linkage between company´s research and development function in closed innovation process (Chesbrough 2006, p. xxi).



Picture 4.5. The closed paradigm for managing industrial R&D (modified from Chesbrough 2006, p. xxii).

The term ´not invented here´ (NIH) describes a corporate culture that avoids using existing research or knowledge because of its different origin, or reluctance to get involved in any activity outside the own area of responsibilities (Kettunen et al. 2007, p. 123). According to Chesbrough (2006) the closed innovation logic was challenged by the increasing fast time to market of many products and services, making the technology´s shelf life ever shorter. Also increasingly knowledgeable suppliers and customers further challenged the company´s ability to profit from their own knowledge. Fundamental technology breakthroughs occurred and it required using also outside research options to handle those. Highly-skilled scientists and engineers frustrated to focus on internal R&D only, and preferred to start up new companies. So, closed innovation thinking was no longer sustainable and a new approach of open innovation proved its profit. Open innovation thinking assumes that companies can and should use external and internal ideas, either in the research stage or later in the development stage, and as well use both channels to market when looking for to advance their technology. (Chesbrough 2006, pp. xxiii - xxiv.) The open innovation paradigm for managing R&D is shown in the Picture 4.6.

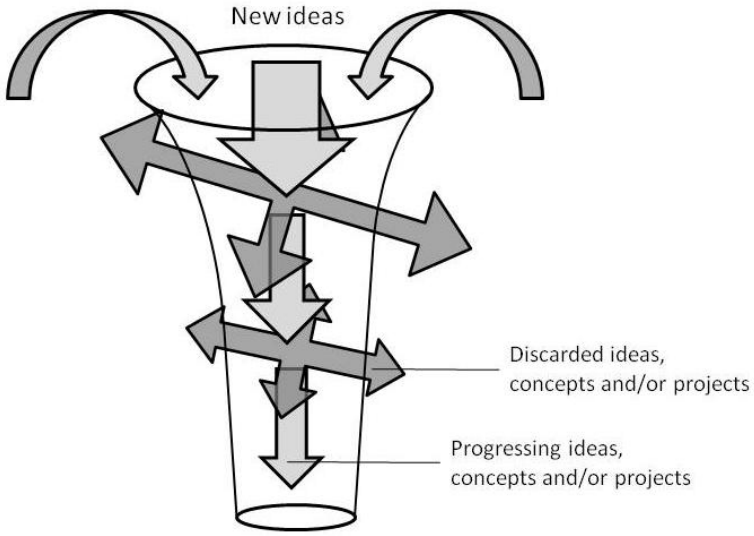


Picture 4.6. The open innovation paradigm for managing industrial R&D (modified from Chesbrough 2006, p. xxv).

Open innovation process enables to weed out false positives as well as to recover false negatives, which are projects that in the beginning seem almost worthless but later on turn out to be surprisingly valuable, more probably in a new market rather than in the current one (Chesbrough 2006, p. xxv). To use innovation communities is practical, because they are often stocked with useful tools and infrastructure that increase the speed and effectiveness with which users can develop, test and diffuse their innovations

(von Hippel 2005, p. 93). A company may be included in an innovation community, or either use one for crowdsourcing.

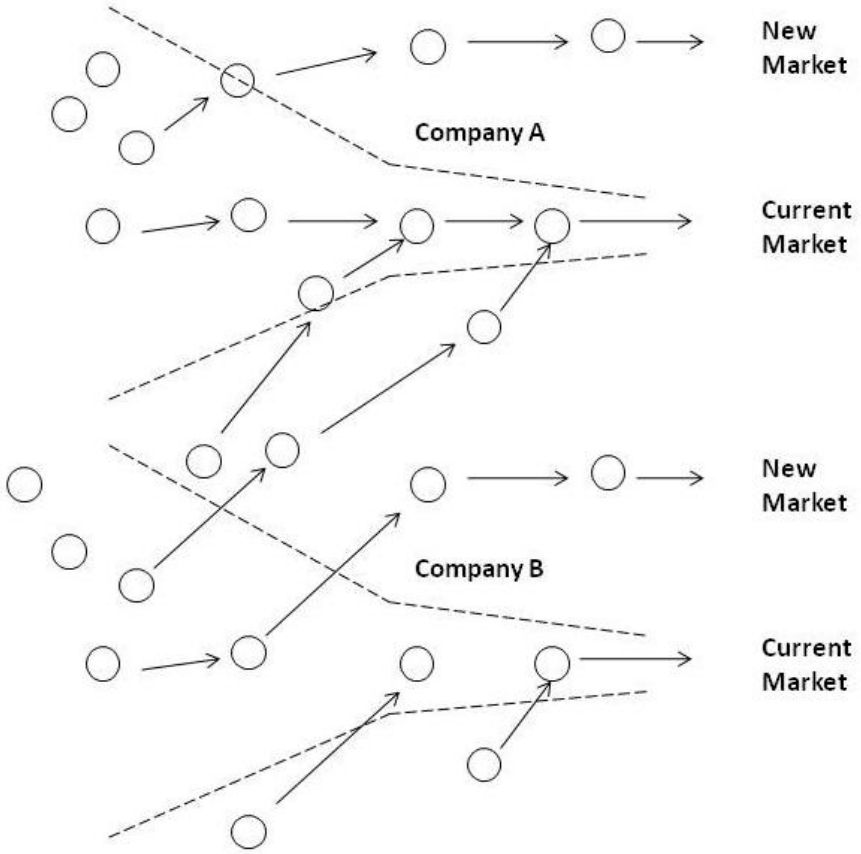
Kettunen et al. (2007, pp. 95 - 96) see that failures in innovation should be allowed and regarded as important learning opportunities. Failing should though be managed, because most of the ideas do not lead to real innovation. Combination and processing of ideas is essential. The innovation funnel (see Picture 4.7) shows how the number of ideas decreases with time. Uninteresting ideas are deleted, others are combined and further refined into new concepts and projects, which in turn may be deleted or combined with each other. The principle of fast failing implies that the elimination rate should be higher in the beginning of the funnel. Then the failed ideas could be eliminated before they are processed to concepts or projects, which are a lot more expensive to eliminate.



Picture 4.7. The innovation funnel (modified from Kettunen et al. 2007, p. 96).

By Chesbrough (2006) the increasing availability and mobility of skilled workers, the development of the venture capital market, external options for ideas sitting on the shelf, and the increasing capability of external suppliers have all affected to the shift from closed to open innovation environment, and have rearranged the landscape of knowledge. Pools of knowledge are distributed across the landscape, and companies should structure themselves to leverage these pools; vital knowledge can be found, among all from customers, suppliers, laboratories, universities, consortia, consultants, and start-up firms. (Chesbrough 2006, pp. 34 - 40.) Von Hippel (2005, p. 77) also says that if user innovations are not diffused, multiple users with very similar needs will have to invest to redevelop very similar innovations, which is a poor use of resources, also from the viewpoint of social welfare. User-innovators may be generally willing to freely reveal their information.

The Picture 4.8 illustrates the landscape of knowledge in the open innovation paradigm and shows the flow of internal and external ideas into and out of two companies.



Picture 4.8. The knowledge landscape in the open innovation paradigm (modified from Chesbrough 2006, p. 44).

The open innovation landscape sets new requirements and also possibilities for research. According to Chesbrough (2006) companies should organize their internal R&D to identify, understand, select from, and connect to the abundance of available external knowledge. Also they should be able to fill in the missing pieces of knowledge not being developed externally, and to integrate internal and external knowledge to form more complex combinations of knowledge, as creating new architectures and systems in or between the companies. (Chesbrough 2006, p. 53.) Assimilating foresight process to internal R&D could end up resulting very innovative ideas to develop. Von Hippel (2005) claims that there is a general trend toward an open and distributed innovation process driven by steadily better and cheaper computing and communications. It results to an ongoing shift toward the democratization of innovation, which is forcing major changes in user and manufacturer innovation practices, and is also creating a need for change in government policies. It also presents major new opportunities for everybody. (Von Hippel 2005, p. 177.) With opportunities there always come challenges as well.

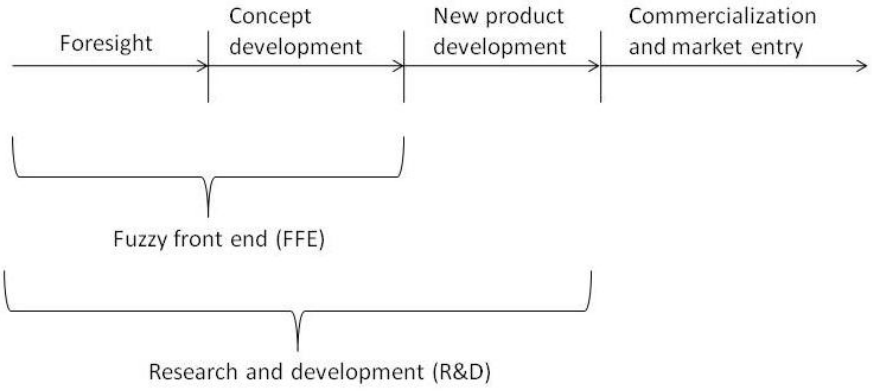
According to Chesbrough (2006) it is a hard work for companies to convert promising research results into services and products that solve real problems of the customers. That needs integrating the company´s own ideas with the ideas of others and deliver the result through the company´s business model. A society benefits if the ideas flow through multiple business models. The existing diffusion opportunities to reuse and recombine knowledge will yield more innovation sooner in a society. A society with companies that invest in increasing the stock of their knowledge, the skills of their people, and the institutions to support the exchange of that knowledge, will realize an encouraging and prosperous future for it citizens. (Chesbrough 2006, pp. 194 - 195.) Solatie & Mäkeläinen (2009) present some results of the research about the development targets of innovation activities in Finnish companies, based on interviews of corporate executives. Among other things there appeared things as difficulties in forming an innovation strategy, communicating it for the whole company, directing resources, and committing the personnel to it. But more thought-provoking were the experienced difficulties in surveying alternative futures, activating interdisciplinary intercourse, forming an innovation basis on recruiting, increasing open innovation collaboration, combining technological and commercial points of view, aiming at radical innovations, and widening and systemizing the collection of ideas. (Solatie & Mäkeläinen 2009, p. 56.) Implementing a systematic, continuous foresight process or utilizing foresight information produced by others, would help in handling at least a part of these difficulties.

4.2. The outcome of foresight

The main objective of foresight is to lay solid foundation for the review of possible future scenarios and new emerging business opportunities and, if necessary, revision of company´s strategies and action plans (Kettunen et al. 2007, p. 148). Many parties may have foresight practices, but what matters is the ability to bring the results into practical level; to support innovation and to convert it to insight of business and strategic choices.

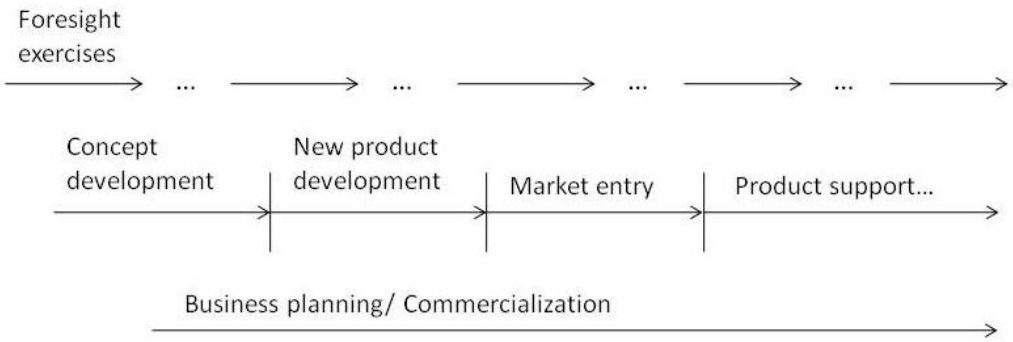
4.2.1. Foresight in process

According to Kettunen et al. (2007) seeing innovation as a process helps to think that it is manageable and measurable. Picture 4.9 shows the structure of the process divided in four phases: foresight, concept development, new product development (NPD), and commercialization and market entry. Alternatively the first phases of the process can be called as fuzzy front end, which refers to activities typically taking place before new product development with the purpose of understanding better the business environment development, as foresight activities (e.g. industry trend monitoring) and scenario building, or more generally research and development (R&D), which includes the NPD phase also. (Kettunen et al. 2007, p. 90.)



Picture 4.9. An innovation process reference model; the degree of formality increases as the process proceeds (modified from Kettunen et al. 2007, p. 90).

The authors continue that the first phases of the process aim at opportunity identification and assessment, and strengthening of the business case. These phases are usually iterative and relatively informal: spontaneous, chaotic, experimental, and even difficult to recognize. Fuzzy front end, including foresight activities, is often seen as the most challenging part of the process without any predetermined, specific goal. The degree of formality grows when the process proceeds. Though, the innovation activity as a whole is not rigid or linear; different phases of the process overlap in time and scope, and interactions between persons and interest groups are integrated to the process. Foresight activities run in parallel with more specific concept development initiatives and NPD. So, the phases in the process do not follow each other sequentially, which is shown in Picture 4.10. (Kettunen et al. 2007, pp. 90 - 91.)



Picture 4.10. A revised innovation process reference model; process phases overlap in time and scope (modified from Kettunen et al. 2007, p. 91).

The outputs of the foresight exercises can be utilized in different phases of the innovation process. For example, in the beginning, foresight could offer triggers of

future trends to get ideas for concept development and planning new products. When organizing market entry, foresight can offer current information about local hot spots and phenomena in different markets, or either helps to recognize new potential markets. Following trends is also important for product support to know where the industry is going and how to focus company´s intentions. In general, foresight offers support to plan the overall direction of the business, and especially helps to challenge current assumptions of the business. Biggest mistakes can be done with expecting that the procedures that have worked well until now will continue working well also in the future.

With foresight activities, to rely only on formal internal communication is both slow and also diminishes the benefit of collaborative meaning creation. A communicative capacity is judged as a key factor for the success of the foresight activity. Project-based and issue-driven foresight activities might have important impacts but the best practice in terms of the mode of foresight would be a combination of bottom-up and top-down triggered projects, as well as continuous foresight processes, where every employee should be responsible for scanning weak signals while foresight unit works as a information hub facilitating and conducting large-scale foresight projects. (Rohrbeck & Gemünden 2008, pp. 5 - 7.) So, a trigger to start a foresight process should be possible from all around an organization besides continuous signal observing and collecting process, which may generate triggers by itself.

Salmenkaita & Salo (2004, pp. 898 - 899) remind that while the evaluations of foresight exercises have confirmed beneficial impacts, there has noted also challenges in the utilization of results: 1) it is difficult to select the appropriate level of detail in analyzing key technologies, 2) there may be a tension between the richness of informational outputs and their usability for subsequent action plans, and 3) a foresight exercise appears more interesting if it offers new and possibly contentious insights, but since those may not be readily actionable, exercises that codify unsurprising viewpoints may be more successful in generating jointly approved action plans.

Even though sharing some methodological characteristics and similarities in terms of time horizons and audiences addressed, most foresight activities usually have different aims, scopes and levels of implementation, and thus their evaluation typically focus only on assessment of whether or not the goals have been attained (Amanatidou & Guy 2008, p. 540). More than foresight itself, foresight processes might impact to certain characteristics of the emerging knowledge society, like networking effects, knowledge, and skills; though these impacts usually are not the direct or intended ones (ibid. 2008, p. 543). Foresight also encourages new types of affiliations and alliances by engaging actors with different backgrounds, skills and perspectives in new forms of networking towards a common purpose, and thus enhance the development of social capital; furthermore it can break down some barriers between science and society, and thus help

to develop multidisciplinary research and to cope with social, environmental and intellectual complexity (ibid. 2008, p. 544).

Amanatidou & Guy (2008, p. 545) outline generic objectives model for foresight exercises likely to contribute to a more participatory knowledge society:

Higher level goals:
- Coping with the risk society
- Enhancing the knowledge society

Intermediate goals:
- Creating informed publics
- Dealing with uncertainty
- Promoting active participation
- Supporting innovation-based growth
- Increasing creativity, knowledge diffusion and absorption

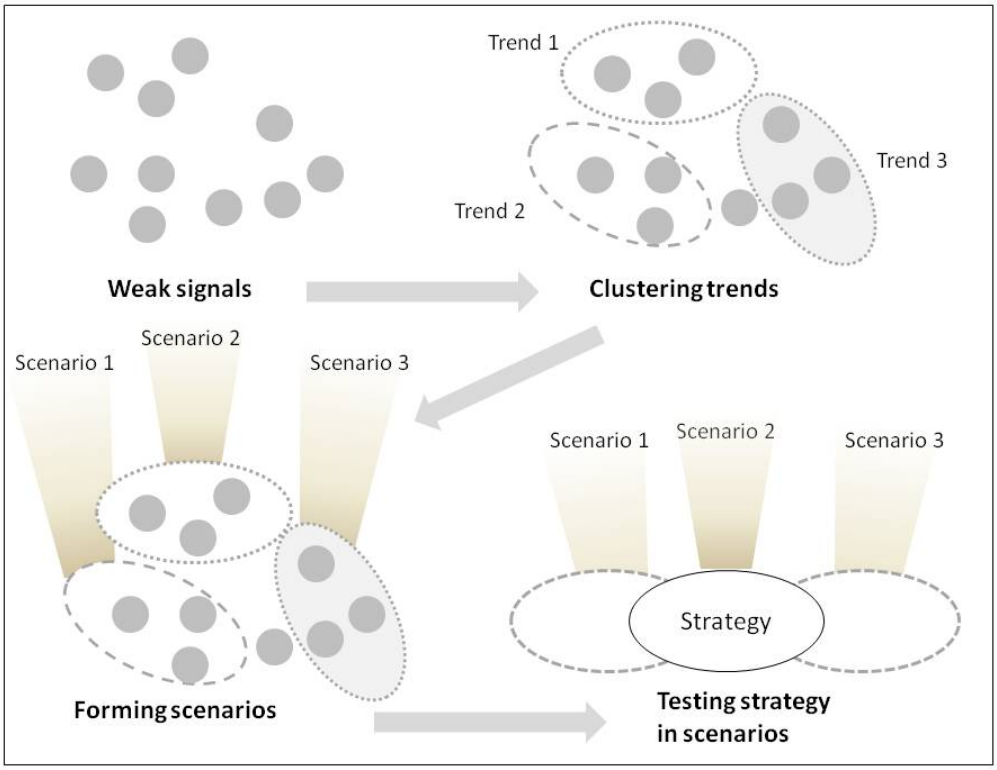
Lower level goals:
- Aligning actors
- Facilitating networking
- Increasing levels of social capital.

Kettunen et al. (2007) present the key phases of the foresight process, which are: 1) design, where content and process issues should be defined, 2) preliminary studies, where relevant existing information to support the exercise is identified and collected, 3) main foresight, where the baseline is established, future scenarios are identified and ranked, opportunities and threats are identified, and the results are documented and disseminated, and 4) review of strategic and action plans, where the implications of the results are identified and discussed (ibid. 2007, p. 152). Foresight is too easily left to mean only collecting signals and analysing those; what is significant is to take that information into companies, and evaluate the possible effects in their strategic level.

4.2.2. Foresight with redefining the strategy

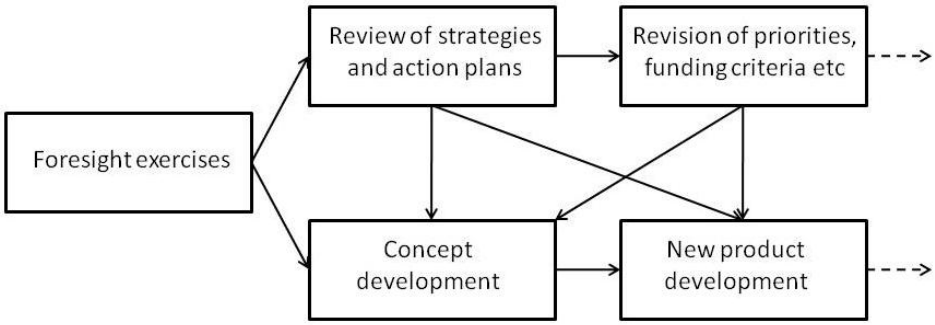
Anticipating new business possibilities is one target for foresight, like mapping new business concepts or new market areas. With foresight, it is possible to recognize changes in the business environment and e.g. in the technology, and by that be prepared for those. Foresight is a means to survey new business potential as well a part of the strategic risk management. Hiltunen (2009) says that using weak signals in anticipating the future requires collecting and registering them actively. The power of weak signals is in their mass, and by combining them you can try to outline emergent action patterns. So, weak signals should be collected continuously, and then analyze them systematically, as well as to consider their possible meaning in future. As presented in Picture 4.11, when you have collected enough weak signals, it is useful to combine

them in subjects of trends. Based on weak signals that have been analyzed and classified as trends, it is possible to form different pictures and scenarios of the future. Strategy should be tested in different scenarios, and possible development needs reflected. Trend subjects offer also an excellent basis for innovation work. (see Solatie & Mäkeläinen 2009, p. 196.)



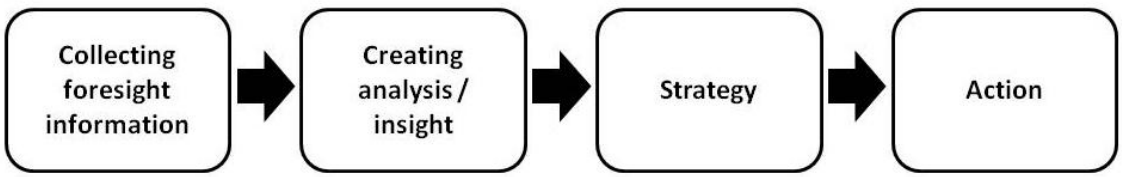
Picture 4.11. Using weak signals in organization´s future and strategy work (modified from Hiltunen 2009, see Solatie & Mäkeläinen 2009, p. 197).

According to Kettunen et al. (2007), companies´ need for foresight is mostly related to decision-making, and it is seen as a proactive step to deal with uncertainties in the ever-changing business environment. As seen in Picture 4.12, foresight is typically expected to contribute generally to strategies and action plans, and in particular to concept and new product development. Foresight needs to be linked firmly to management processes, as it is seen belonging to the sphere of innovation management. (Kettunen et al. 2007, p. 151.)



Picture 4.12. Foresight contributes to innovation and strategic management (modified from Kettunen et al. 2007, p. 151).

As seen in Picture 4.12, performing foresight exercises can lead to reviewing of strategies and action plans. In the final phase of the process, according to Kettunen et al. (2007, p. 161), the findings of the foresight exercises are assessed from the business-planning point of view. If needed, reviewed strategies and applicable action plans will be updated to reflect the latest understanding of the processes and changes that are expected to take place in the organization´s operating environment. The objective is to assess the findings, act upon them, and utilize efficiently the findings concerning most probable and relevant future scenarios. Though, the understanding generated as part of the process is of limited or no value unless there develops commitment to further action also (ibid. 2007, p. 162). The process should be assessed from the view of an customer; Maula (2007, p. 4) stresses the overall importance of automation of processes, at least part of those, so that clients could be served effectively at least in part of routines in every case. Even though foresight processes can be seen more ambiguous than most of the industrial processes, it should be planned and managed in some frames. Picture 4.13 shows a simple model of foresight process as it is best understood in this study. It is important to pay attention to utilizing the results of collected foresight information in practice: redefining strategy and acting accordingly.



Picture 4.13. Foresight process (modified from Kyläkoski 2009, see Lahden tiede- ja yrityspuisto Oy 2010, p. 8).

Foresight has often supported shared vision-building and generic priority-setting, but it also fosters diversity in terms of new perspectives and insights into the innovation process. There is an increasing importance of dialogue and iteration in creating

innovations, which implies a need to move to more solution-based foresight processes, where the development of customer behaviour and needs as well as major socioeconomic trends are taken into account as sources of new ideas. (Kettunen et al. 2007, p. 162.) That requires deep collaboration between private and different public organizations. Foresight has intentions to effect positively in the whole economy by contributing the business of its units; companies and organizations. By increasing the awareness of significant phenomena emerging globally, and encouraging overall innovativeness of companies, foresight will have wide benefits in both individual company and general societal level, contributing the whole innovation ecosystem.

5. FORESIGHT IN THE CONSULTING WORK – THE CASE ENVIRONMENT

This chapter presents the characteristics of the case company, Finpro ry. First, some general information of Finpro is presented. Then, Finpro´s foresight process is described more in detail. After that, the foresight environment in which Finpro is operating is outlined. In the end, the implementation of the study is described.

5.1. Finpro ry

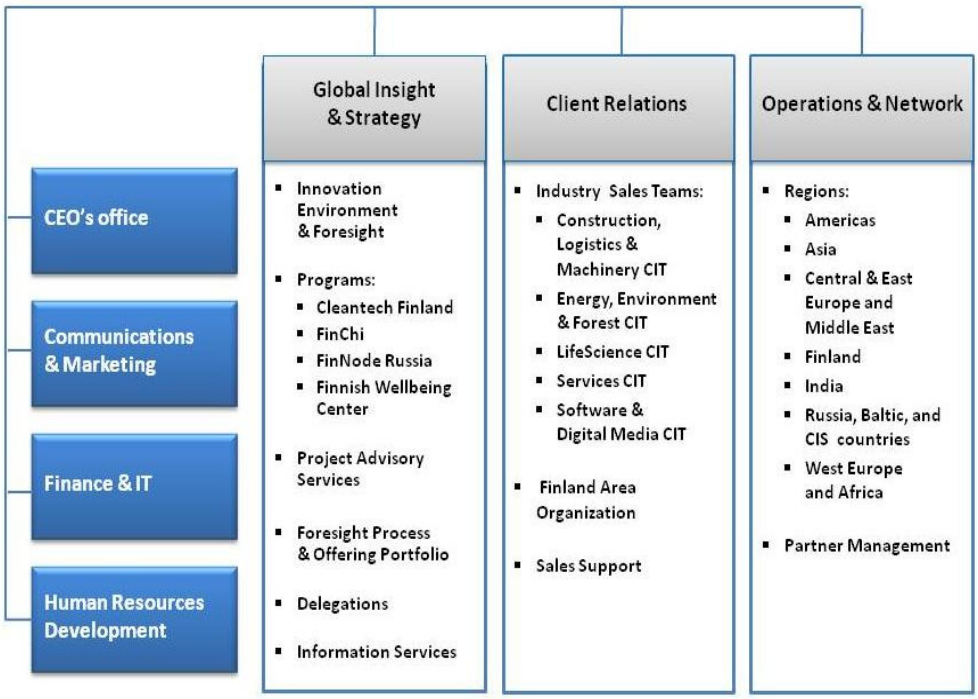
Finpro ry is an association founded 90 years ago by Finnish companies. As members it has about 550 Finnish companies, the Confederation of Finnish Industry and Employers, and the Finnish Entrepreneurs Organization. Finpro is public-private partnership organization funded partly by the Finnish government, and it operates under the ambit of Ministry of Employment and the Economy (MEE). Finpro employs about 350 persons, of which 250 are located abroad; it has consultants and industry and market analysts as experts of internationalization in more than 40 countries in Europe, Asia, and the Americas (see Picture 5.1). Finpro has a national task of promoting the growth and competitiveness of Finnish companies through internationalization, and so its clients are Finnish companies at different stages of internationalization. (Finpro 2010.) Finpro can be regarded as knowledge intensive business service organization (KIBS); its main offerings base on the knowledge and expertise of its employees, and it offers services to other companies and businesses.

Picture 5.1. In 2010 Finpro and its cooperation partners will serve Finnish companies in over 60 offices and 44 countries (Finpro Boulevard 2010).

Finpro specializes in seven key industries:

- Energy and environment,
- Life sciences,
- Forest,
- Software and digital media,
- Services,
- Construction and logistics, and
- Machinery.

The purpose of Finpro is to guarantee that especially small and medium sized companies have an access to comprehensive internationalization services around the world. Finpro´s strength is in the expertise of the target markets, as it has committed personnel located abroad. Among those are both Finnish and local employees, so the real insight of the business is gained. Internationalization is supported by Finpro´s partner network, including for example the TE Center, Tekes, Finnvera, Invest in Finland, Fintra, Sitra, the Finnish Tourist Board (MEK), the Ministry of Employment and the Economy, research institutes, investors, and venture capitalists. As an example of this collaboration are innovation centres: FinChi in Shanghai and FinNode in California, and also St. Petersburg will have one during this year. (Finpro 2010.) Finpro functions as a matrix organization, as seen in Picture 5.2. Different units are spread all over the global organization, and the supporting functions are situated in Finland.



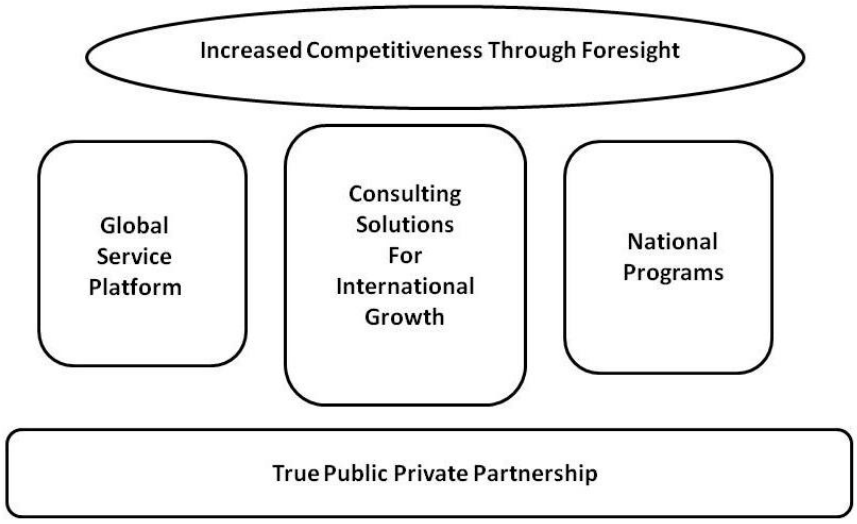
Picture 5.2. Finpro Organization chart (modified from Finpro Boulevard 2010).

5.1.1. Vision, mission, and strategy

Finpro has a national mission to build successful Finland in global economy.

"As a window to global change, Finpro challenges Finland to seize the emerging opportunities" (Finpro Boulevard 2010).

Finpro aims to build a competitive edge for the Finnish economy, and contribute to Finnish companies' success with its global service platform. Finpro's vision is to be the trusted partner when seizing global business opportunities. Finpro´s strategy for the next three-year period is shown in Picture 5.3.



Picture 5.3. The core of Finpro strategy 2010-2012 (modified from Finpro Boulevard 2010).

The strategy 2010-2012 bases on five building blocks:

- Public-private status: both the public and private viewpoints are taken into account in all Finpro activities.

- Consulting: the main core of the actions, creating the majority of the national impact through value-added services to individual companies.

- Global platform: services mainly covered by governmental funding, or individual users of Finpro´s global network (like Finnode Russia, Invest In Finland and Visit Finland).

- Programs: large national projects (like Cleantech Finland).

- Foresight: Finpro´s ability to see, seize, and act on global opportunities.

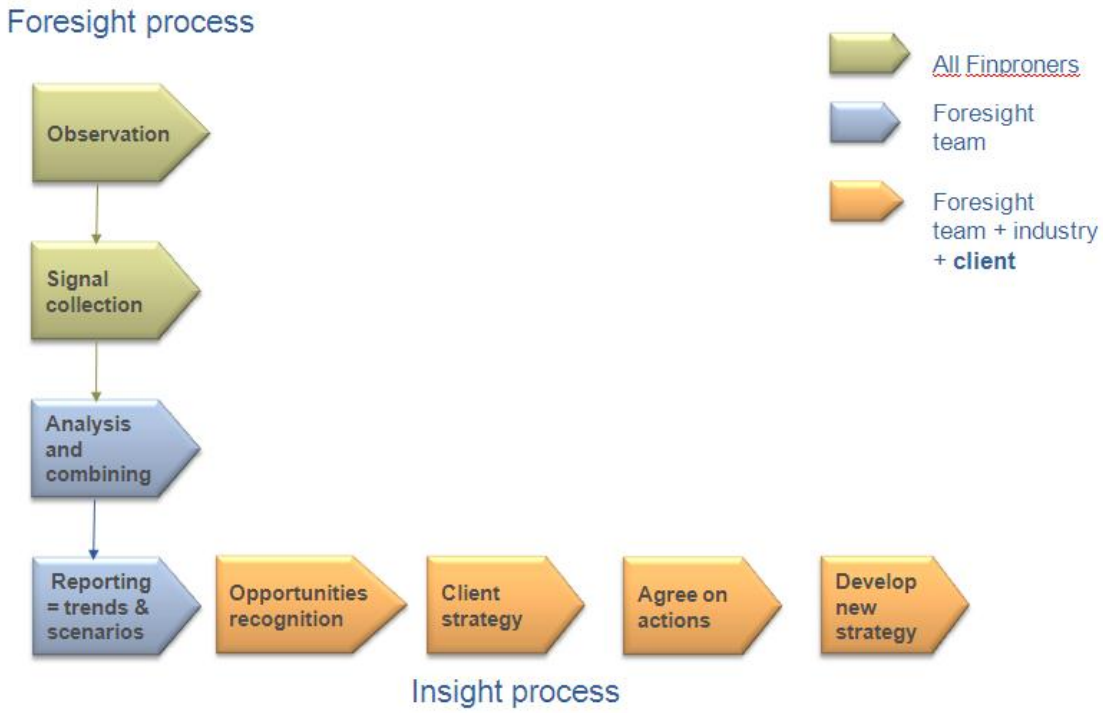
The activities with clients and cooperation with other partners has an intention to promote the well-being of Finnish industrial life. Finpro is also seen as an extension to Finnish innovation ecosystem abroad, and it works with partners to make foresight available to Finnish economy. (Finpro Boulevard 2010.)

5.1.2. Foresight in Finpro

Finpro´s foresight process exploits already existing information and knowledge that represent early indicators of change, as weak signals; foresight enables to fully see and exploit these. Foresight in Finpro is about how to work with the present to plan for and take control of the future so that clients can grow, Finpro reaches its targets, and the national mission is fulfilled. It is about eliminating uncertainty and gaining a unique understanding and insight about tomorrow and tomorrow's markets.

Foresight in Finpro starts with collecting (weak) signals and observations around the world. The observations are analyzed and clustered into trends. Then the understanding and knowledge of industries and companies are added in order to create insight. The results of Finpro foresight process are used in client assignments, development of Finpro's own operations, and to benefit the Finnish economy. Finpro has an objective to be the main actor in weak signal collection and the authority in foresight process, and the preferred manager of nationally significant programs and projects. The results will be disseminated actively and in doing so significant value will be added to clients and the Finnish innovation system.

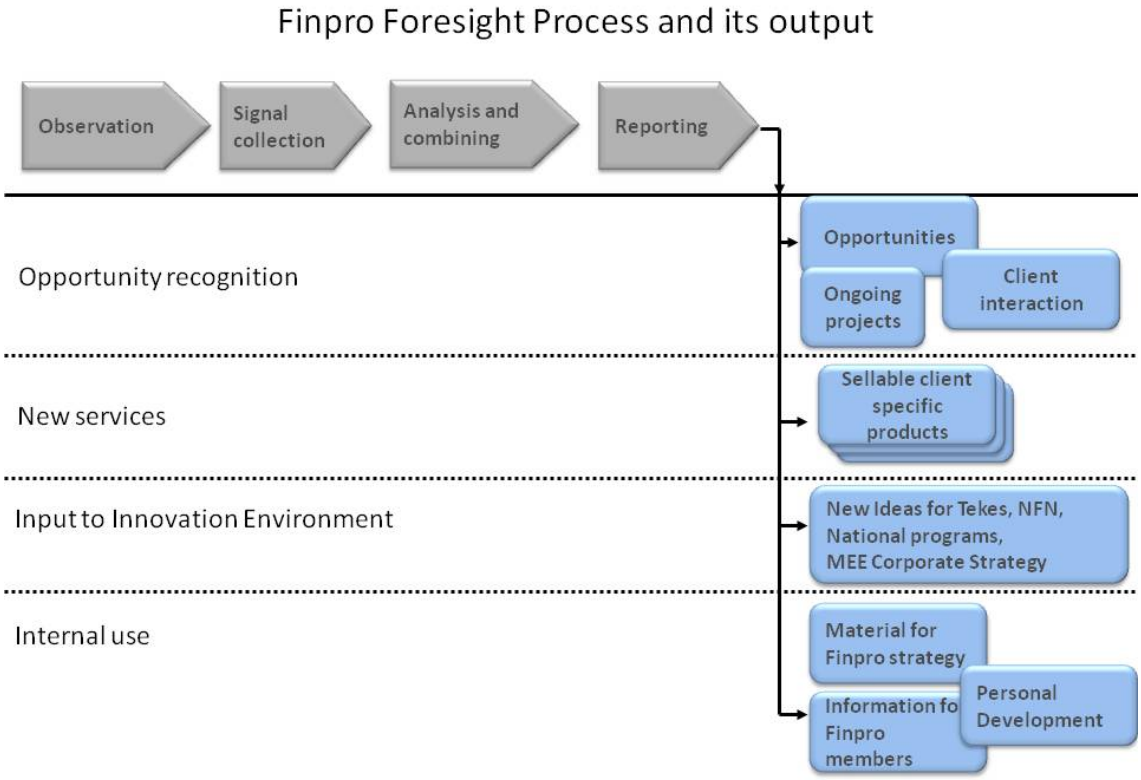
The process is following: everyone in Finpro´s global network is an observer of change and new potential developments. The foresight tool, Trendwiki, allows the collection and sharing of observations, i.e. signals, within Finpro. Some of the signals will be part of larger, recurring patterns, i.e. trends. The signals are combined and analysed, and the core foresight team goes through the data regularly: which of the signals support each other, what kind of global trends can be seen, what are the drivers and opportunities in order to build competitive advantage to the clients. In the view of these findings the organization´s strategy and actions are re-evaluated. (Finpro Boulevard 2010.) The process is described in Picture 5.4.



Picture 5.4. Finpro´s foresight process aims at contributing the strategic level of a client (Finpro Boulevard 2010).

So, the whole Finpro has an access to Trendwiki, which is a wiki-based community platform to collect, organize, and refine information. It also enables intercourse among wide networks. Analysis tools explore the information and bring out emerging trends. Trendwiki is a collection of the best social media methods adapted to support company´s business and supporting actions; the findings of Trendwiki can be communicated to people by Dashboard, which is a simple and stylish user interface (Data Rangers Oy 2009).

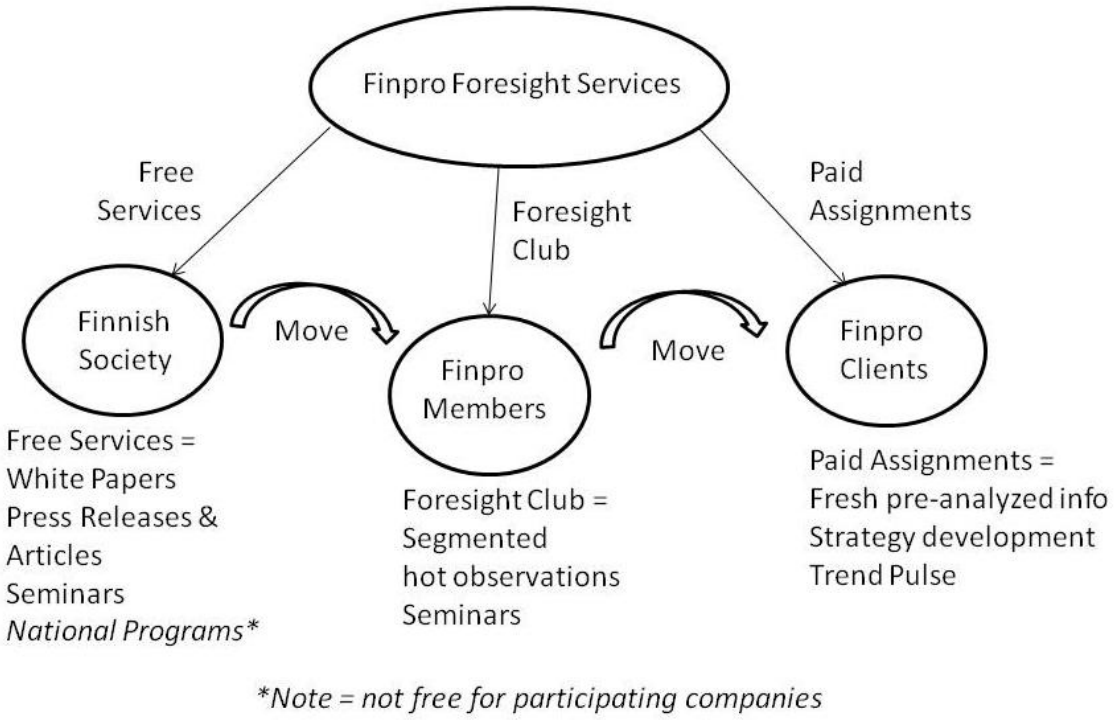
Finpro´s foresight process has intentions to contribute not only Finnish companies, but also its own internal processes, its partners, and whole Finnish innovation environment. The output of foresight process is described in Picture 5.5.



Picture 5.5. The output of Finpro´s foresight process (Finpro Boulevard 2010).

The trigger of starting foresight process in Finpro came from realizing that changes in the business environment are difficult to see based on information of history alone. Foresight is seen as an ability to foresee and prepare wisely for the future. The Foresight team started to describe the process for foresight capturing in autumn 2008. The tool, Trendwiki, and the way of working with signals have been introduced to all employees of Finpro in the beginning of 2009. Trends play a significant role in shaping the future, and the target is to build a foresight community covering Finpro employees, their clients, members and partners. (Finpro Boulevard 2010.)

The planned foresight offering for different stakeholder types is outlined in Picture 5.6.



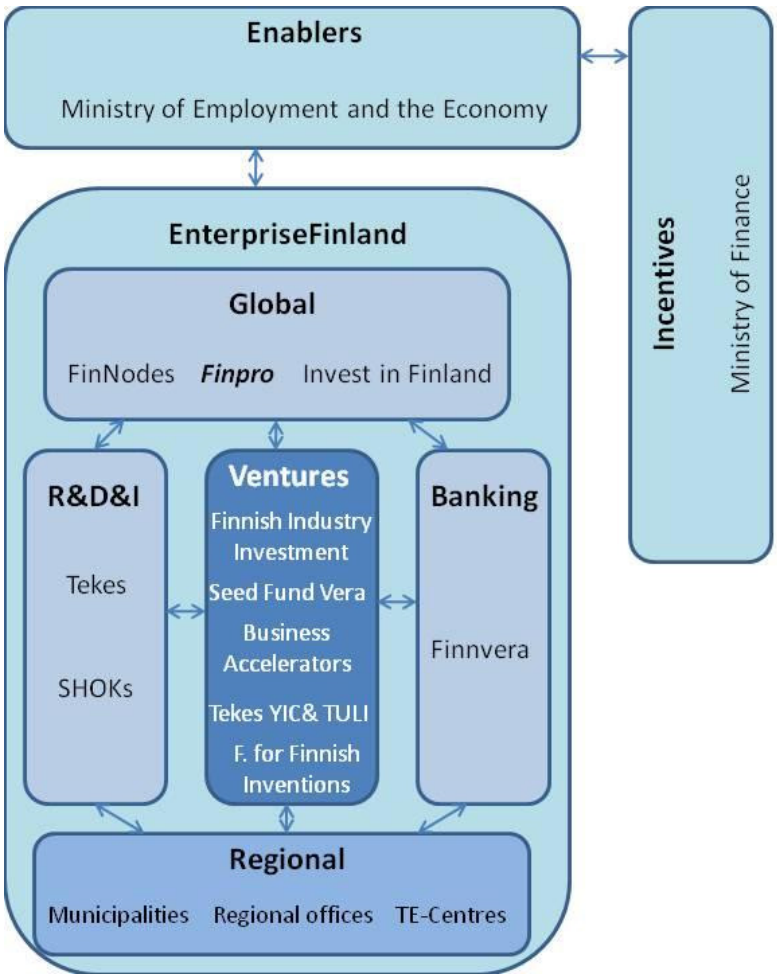
Picture 5.6. Service type by stakeholder (modified from Finpro Boulevard 2010).

As being semi-public organization, Finpro needs to offer free services for the societal level, like white papers and publications. Based on this study, Finpro has decided to publish Finpro trends every six months, and form industry specific trends from those. Members need services for their membership fee, and Foresight Club is planned to offer services through member portal. Finpro has already launched SYKE service, which offers hot observations from different industries, and a possibility to rate and discuss topics in the portal. Different types of fee-paying assignments are offered for clients. Trend Pulse is the name for the first specified service, where trend information is collected of predefined themes, and that is analysed in the light of an individual company. (Finpro Boulevard 2010.)

5.2. Foresight environment in Finland

The national innovation system of Finland was evaluated by Ministry of Education (2009). The findings showed that nearly all agencies provide some sort of support to new ventures, and growing and developing firms, or provide services with similar titles. As a result, entrepreneurs are not always able to locate and access efficiently appropriate sources of support. So, the suggestion is that the support system should be re-designed to be more streamlined, specialized, and cost-efficient. Above all, the enterprise support system must be more accessible and relevant for Finland's highest potential: young and growth-oriented firms. Streamlining the system would ease the governance of enterprise support services, lessen the risk of duplication, and enhance

the cost efficiency of the system. (Ministry of Education 2009, pp. 64 - 65.) The sketch of the suggested public support system for enterprises is showed in Picture 5.7. Finpro is there in ´Global´ section in the field of ´Enterprise Finland´, doing collaboration with partners of R&D&I, Ventures, and Banking, and of course with all regional actors.

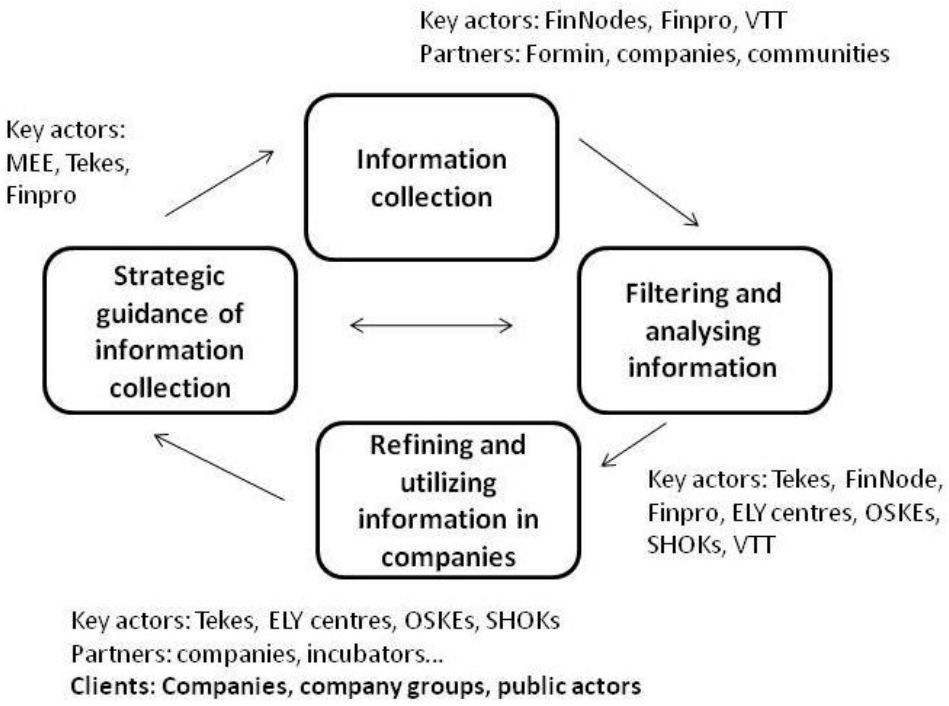


Picture 5.7. An outline of a streamlined public enterprise support system (modified from Ministry of Education 2009, p. 65).

The evaluation also showed that Finnish innovation system is less internationalized than it is thought, and there are signs that it is going further behind. Getting deeper into the global knowledge pool should be one of the main objectives of innovation policy. There is a mismatch between the entrepreneurial demand for global insight, foreign expertise, international networks, foreign R&D, and cross-border venture capital. The risk is that opportunities on global markets will not be recognized, and when opportunities do arise, they will be assessed and (mis)understood from a limited, exclusively Finnish geography and perspective. (Ministry of Education 2009, pp. 52, 66.) This is a very good reasoning to improve and widen up Finpro´s foresight activities.

Finnish foresight activity has a character of being mainly as short-term project work. That is the reason it has had problems of fragmentation and overlapping of actions. The organizations that do not have possibilities to collect information systematically are highly dependent on the work of national, regional, and international actors. So, the results of foresight work should be reported in a mode that is meaningful for companies. The problem has been that foresight projects have not considered enough the implementation and transforming the foresight information into company level, so the results have not been utilized in companies´ innovation processes. (Lahden tiede- ja yrityspuisto Oy 2010, p. 8.) With internationalization company´s business environment gets more complex, and the ability to react agile will be emphasised. So, small country and small companies should be able to exploit the benefit of being small and agile, and to know how to recognize the significant changes in the environment, despite the scarce resources. (Syrjänen et al. 2009, p. 35.)

Syrjänen et al. (2009) made a survey for Ministry of Employment and the Economy (MEE) to develop the distribution of different MEE Corporation (MEEC) actors´ roles, and plan its foresight actions. Under the guidance of MEEC are Tekes, Finpro, Invest in Finland, Finnvera, TE centres, OSKEs (Centres of Expertise), and SHOKs (Strategic Centres for Science, Technology and Innovation). Their tasks, roles, and work distribution will be redefined in enhancing the internationalization, and supporting the networking of knowledge intensive business. (Syrjänen et al. 2009, p. 12). Different roles and actions are outlined in Picture 5.8.



Picture 5.8. Suggested model for information collecting network and community (modified from Syrjänen et al. 2009, p. 49).

With enhancing the deeper collaboration between different parties, the societal level development goes towards the open innovation model of the knowledge landscape, which Chesbrough (2006) presented earlier (see Picture 4.8). The open innovation model and tight partnerships could work well in relatively small Finland where this kind of collaboration would be easily arranged and managed. Finpro is willing to have its main focus of foresight on the customer side.

5.3. Study implementation in the organization

The empirical part of the study was accomplished by a questionnaire made for Finpro´s stakeholders, and short interviews for some partners and member companies. Also Finpro´s positioning in the foresight field was investigated to help to consider its differentiation from other actors in the field.

5.3.1. Questionnaire

The questionnaire was planned by the ideas of the supervisor and the whole foresight team in Finpro. The respondents were selected from Finpro´s databases and categorized as Finpro members, clients, prospects, or stakeholders. Prospects are Finnish companies with whom Finpro has had some intercourse but no real action has happened yet. Stakeholders are different confederations, funds, ministries, innovation and research centres etc. Some of the organizations might be categorized in more than one group in real life, for example being a member and a client, but for this questionnaire these duplicates were removed. Purely members were wanted to member group, to stakeholder group purely stakeholders, so if some organizations were either of these and also clients or prospects, they were categorized as latter ones. The real differences between the groups were thought to come out easier in that way.

The questionnaire was sent to 5810 persons and got 953 responses, of which 59 from Finpro members, 704 from Finpro clients, 158 from prospects companies, and 32 from stakeholder organizations. The response rate then is 16,4 %, which is very good for this study. The questionnaire form in detail is in Appendix 1. The first questions were about outlining the current state of the organizations; which information sources are used, has the gathered information been utilized in the guidance of their actions, have the organizations appointed persons to monitor business environment systematically, and how significant changes they have noted during recent years and have they reacted early enough for them. Then the questionnaire continued by asking about the interest in scenario working, which kind of trend related information they would need in support of decision-making, and how they see different services Finpro has planned. The last questions were about interest in the collaboration with foresight services, and what other actors in the foresight field are known. There raised some extra questions considering some parts of the questionnaire, so an extra-questionnaire was sent by e-mail to a small

sample of respondents to clarify those. The answers for these were beneficial only for Finpro foresight team, and are thus not present in this study. The results of the questionnaire are presented in Chapter 6.1.

5.3.2. Interviews

The interviewees were selected by the consideration of the supervisor of this work. The focus of the interviews was different than of questionnaire; it treated more the assessment of Finpro´s foresight process and position in the foresight field. So, the interviewees were persons who know about this topic because of their work with foresight issues, and also some member organization representatives were chosen. Five persons were interviewed. The draft of the interview is in Appendix 2.

The following persons were interviewed:

- **Petri Kalliokoski**, VTT, Senior Vice President, Strategy & Business Development
- **Riitta Nieminen-Sundell**, Sitra, Senior Manager, Foresight
- **Veli Holm**, Smartphone Solutions, CEO
- **Sakari Koskinen**, Devoi, Partner
- **Pirjo Kyläkoski**, TEKES, Foresight Manager

The interviews were half-structured; all of them had same five main themes and questions readily defined, but every interview formed by its own in the end. It was not purposeful to stay strictly on topic, because some questions provoked more conversation than others, and the topics outside the main focus were important also considering the big picture. The interviews were quite short in time; the duration was approximately 35 minutes in each case. The results of the interviews are presented in Chapter 6.2.

5.3.3. Positioning

One objective of the study was to define how Finpro could differentiate from others in the foresight field of Finland. The questionnaire intended to map the actors in this field with asking of those, and a long list of different service providers came out. The foresight team went through this list and ended up with the short list of most important actors, which is in total in Appendix 3. The characteristics and services of these companies were compared with the ones of Finpro, and their positioning was outlined. Chapter 6.3 presents the results of Finpro´s positioning in the foresight field of Finland.

6. RESULTS

This chapter presents the results of the empirical research: questionnaire and interviews, divided by separate themes. The discussion part assesses the conduction of the study.

6.1. Questionnaire

The purpose of the questionnaire is to find out the current state of environment monitoring in the organizations, the overall interest and need for trend related information, and especially for the services Finpro has planned to launch. Investigating the situation in Finnish companies supports the theoretical part of this study, and defining the opinion of different foresight services and collaboration possibilities benefit mostly the interest of Finpro and the planning of their service portfolio.

The results of the questionnaire are treated either by group type: member, client, prospect, or stakeholder; or by the organization size: less than 10 employees, 10-49, 50-249, or 250 or more employees. The most significant results are presented here. All the rest of the graphs can be found in Appendix 4. The questionnaire form is in Appendix 1.

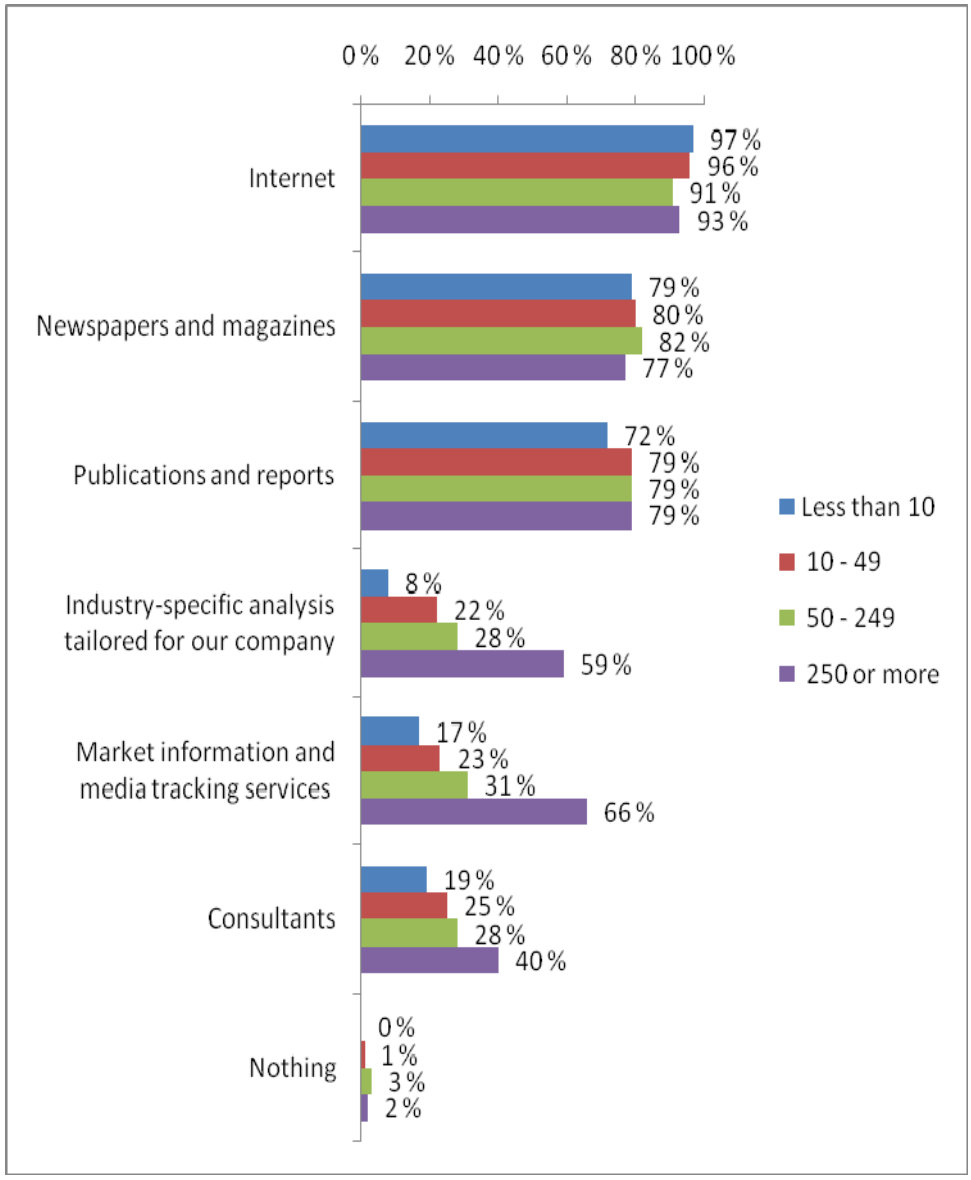
From all the respondents, 6% were members, 74% were clients, 17% were prospects, and 3% stakeholders. Of all 15% had less than 10 employees, 28% had 10-49 employees, 23% had 50-249 employees and 34% had 250 or more employees. So, clients and big organizations form the majority of the answers. The questionnaire resulted many open comments, so straight quotations are marked with *italic*. The dispersion of the respondents and the industry field of the respondents can be seen in Appendix 4.

When measuring the interest, combining very interesting and interesting together reveals the rate of attraction; those are the ones who probably would come along with a certain service. The term attraction rate is later on used in this study to mean this issue.

6.1.1. Monitoring business environment

First, the organizations´ current state of monitoring company´s business environment was surveyed.

Information sources used in an organization to monitor business environment systematically:

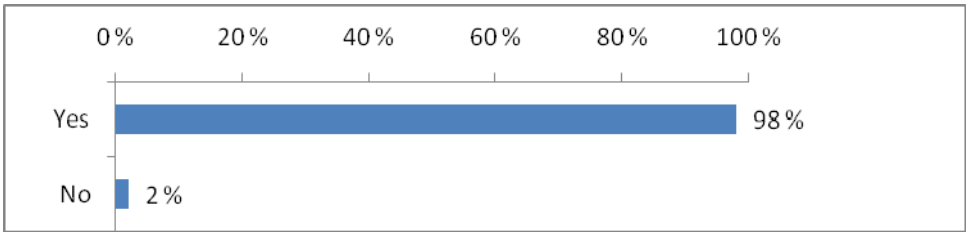


Picture 6.1. Information sources by organization size.

Free and open sources, as internet, newspapers, publications and reports, are used widely among all, but especially small companies concentrate almost only on those. Bigger companies also buy services related to acquiring information. 59% has had tailored analysis and 66% have used information services among the biggest company group, whilst corresponding rates among the smallest company group is 8% and 17%. Using consultants is the mostly used fee-paying service among the smallest companies, whilst it is the least used service among the biggest companies. Very few claim that they do not use any sources at all to monitor business environment. Open comments show that small companies emphasize personal contacts and networks in gathering

information. Bigger companies, by their part, have their own units, procedures, and tools to scan the business environment. Other mentioned sources were: newsletters, futurists, conferences and seminars, exhibitions, industry unions, competitors and stakeholders, social media, own business intelligence etc.

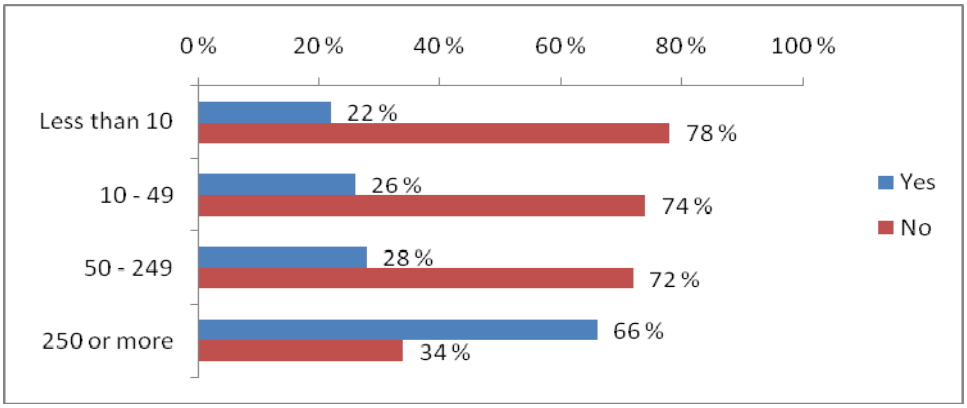
Has your organization been able to exploit this information in the guidance of its actions?



Picture 6.2.

Almost all think that they have had been able to exploit gathered information. Big companies and stakeholder organizations are most sure of that (see Appendix 4).

In your organization, have you appointed a person in charge to monitoring business environment systematically?

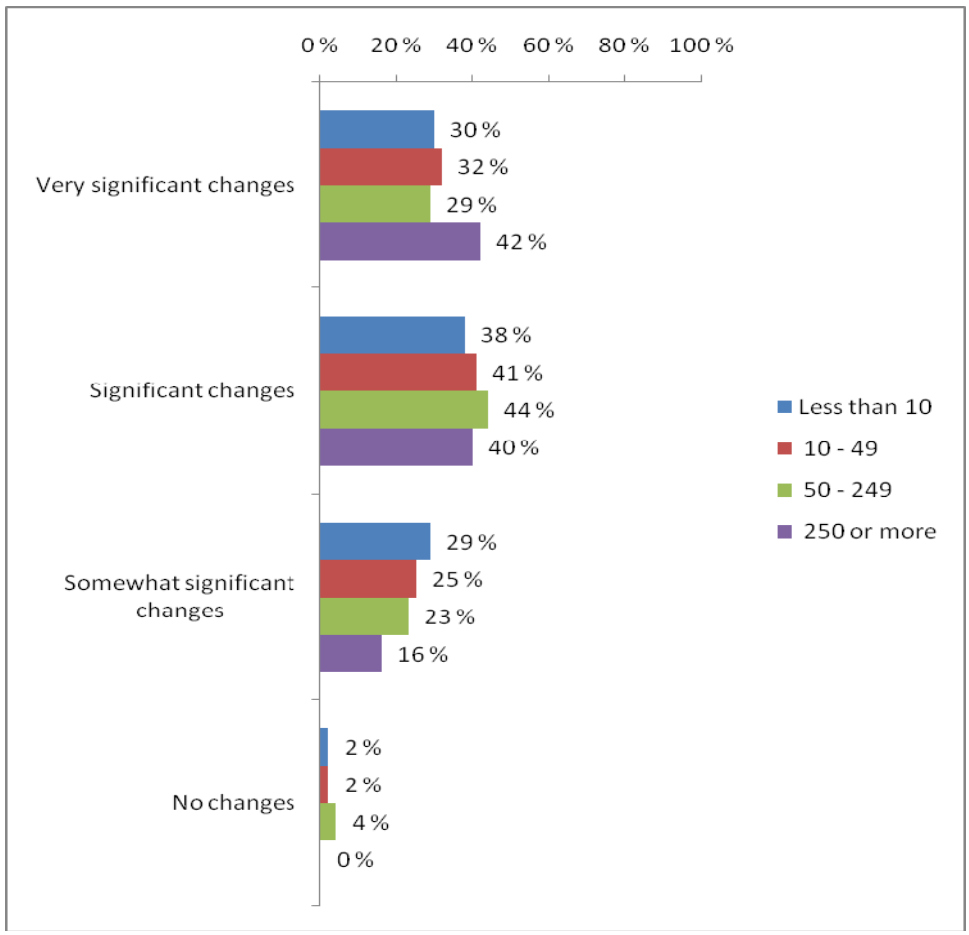


Picture 6.3.

Still, most organizations do not have specific resources to monitor business environment. From all respondents, 39% say yes and 61% no (Appendix 4). The difference is quite notable and has a similar level among all of the companies with less than 250 employees. The exception is the biggest company group, because 66% of them have appointed a person in charge to this work. Member companies have answered most negatively with 82% saying they do not have anyone appointed to this work, and the

second negative group is prospects with 68% saying no; clients and stakeholders have the same rate: 43% say yes and 57% no (Appendix 4).

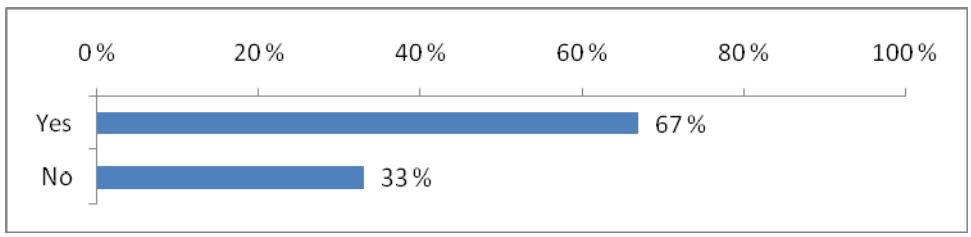
In your business environment in the last two (2) years, has there been...



Picture 6.4.

Most of the respondents see that there have been significant or very significant changes. Big companies see most changes and regard those most significant, as well as stakeholder group among their division (see Appendix 4).

Has your company been able to react to these changes quick enough?



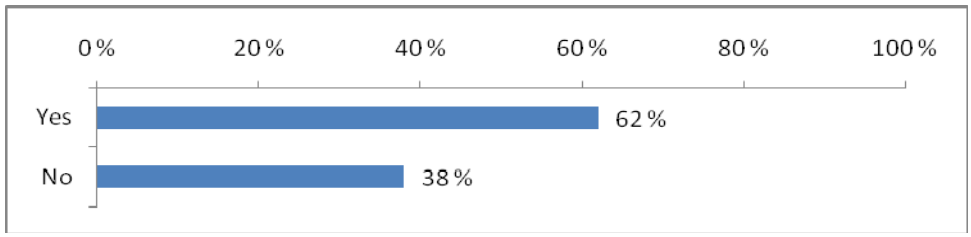
Picture 6.5.

The majority of the respondents think that they have been able to react quickly enough to changes. There is no significant difference between the groups by their organization size: from all 60-70% say they have been able to react. Among the stakeholder groups, the biggest one to succeed in this was stakeholders with 74% saying yes. (Appendix 4.)

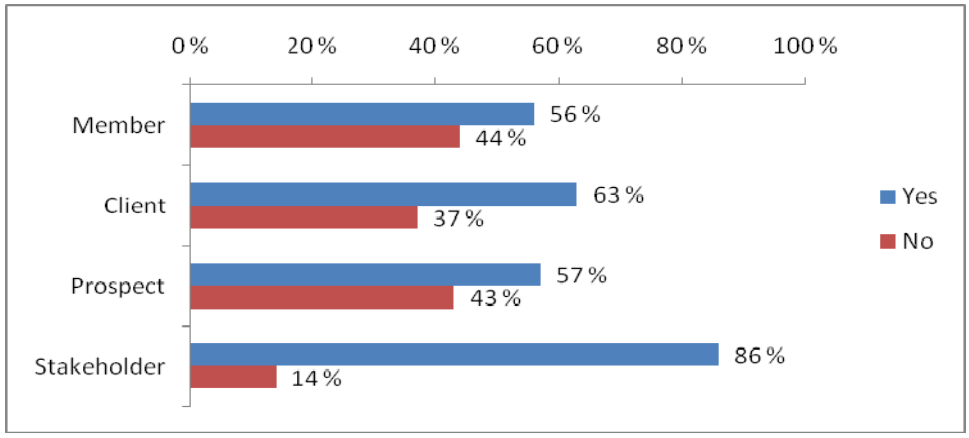
6.1.2. Scenarios and trends

The significance of scenarios was surveyed, as well as which trend related information topics are seen most interesting.

Scenarios are different kind of outlining descriptions of future´s business environment and events. Would you be interested in scenario working?



Picture 6.6.



Picture 6.7.

The interest in scenario working is mostly positive. Especially stakeholders see scenario working very interesting with 86%.

"Useful but troublesome exercise.", "Excellent and necessary tool."

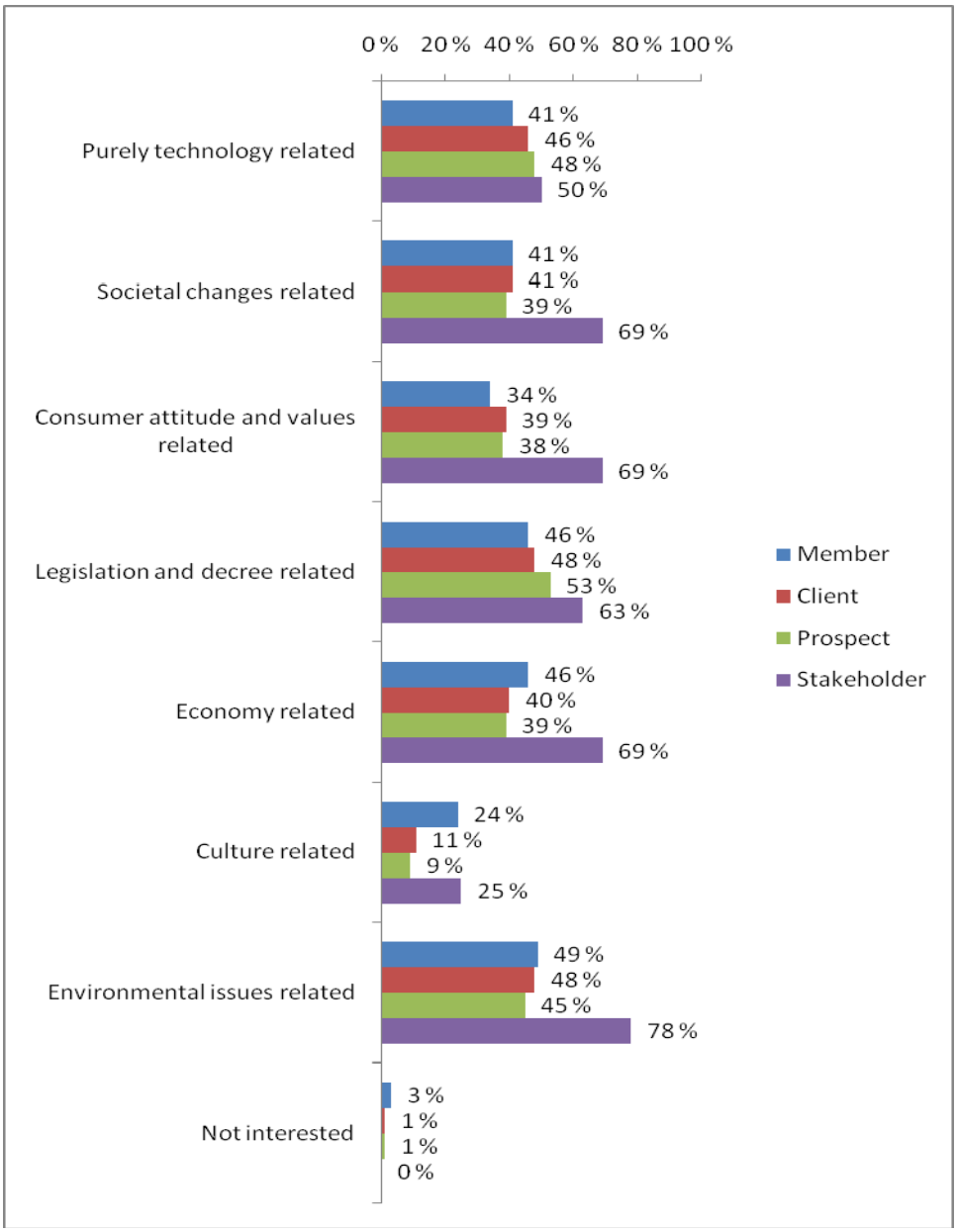
"Scenarios give frames to plan business and develop processes, as well as to specificate the strategy."

In open comments it came out that scenarios are seen very useful but complicated. Many said that they do not have enough resources for that, because benefits are not clear. Still, most of the respondents were saying that they do scenario work in their companies. Scenarios were also linked with SWOT analysis. Scenarios were mainly seen as background work, supporting thinking in strategic planning and decision-making. The term scenario is well known, but it is still regarded more as a governmental level tool. Scenarios were seen both weakly-reliable and too simplifying, but also as a good method to think of and outline the future possibilities. Scenarios were seen needed to be concrete and detailed enough, otherwise doing them would be a waste of time.

"Changes happen so fast that very accurate plans expire quickly. Scenarios are a means to assess how to guide the actions in different situations."

"Most boring and meaningless scenarios are at so general level that, whatever the situation in the world, they are always true."

Trends are development lines or phenomena for which you could prepare by monitoring and analyzing related early-indicating signals. What kind of trend-related information would you need to support your decision-making?



Picture 6.8.

Technology, legislation and decree, and environmental issues related trends are seen most interesting among all respondent groups. Environmental issues trends got the most of the answers. Culture related aspects are not seen that significant. Big companies are most interested in almost every aspect; only in culture related trends the interest rate has the smallest companies as biggest group. Considering the global recession´s wide effects, economy related trends have had fairly small percentage: 41% among all respondents see those important. All other but culture related trends have more or less same rate of interest compared with different company sizes. (Appendix 4.) Stakeholders are most interested in all of the options; it is the only group which has the majority with every aspect. Stakeholders differ with their interest: the most interesting aspects are environmental issues, societal changes, consumer attitude and values, and

economy related trends. Also members have economy, not technology, among the three most interesting ones. All other groups have three of the first mentioned options.

"Everything affects to everything."

"All that requires change or preparation for change includes in the targets to follow no matter what is its societal, economical, or technological meaning."

According to open comments, in general all the trends and especially noticing them were seen important.

"Some trends are less significant than others but they all need to be identified."

Own industry field trends were seen most interesting, but it was also noted that everything, despite the field, that requires preparation or response is important. Open comments showed also critical attitude towards a semi-public organization´s ability to produce this kind of relevant information.

"Interdisciplinary information of all areas would be needed."

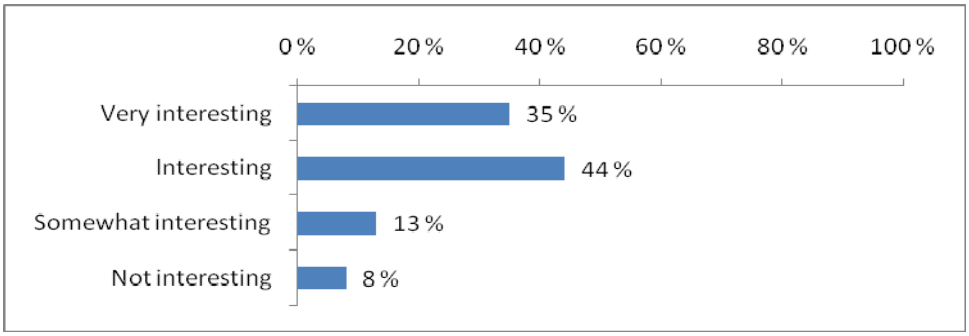
"In the end every trend that affects to consumer behaviour will ultimately affect to business."

6.1.3. Trend related information services

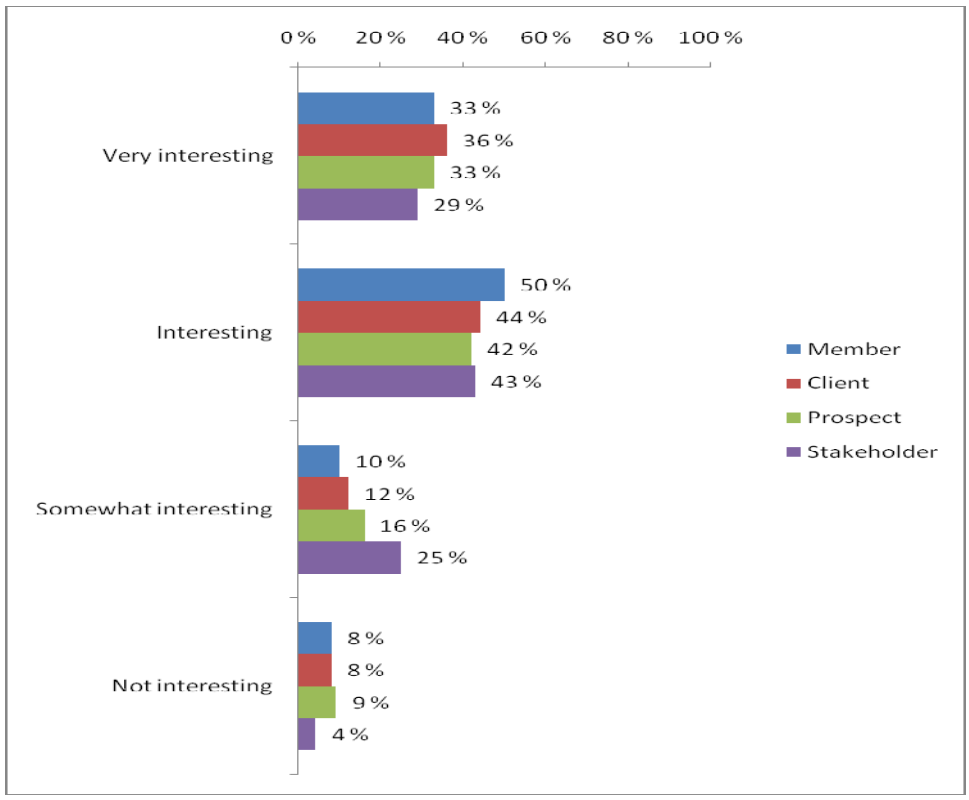
The interest in trend related information services was surveyed. Finpro was interested about which services to provide to which group, so the answers are presented by that categorization. The answers categorized by company size are found in Appendix 4.

Concerning your organization, how interesting are...

General reports of the trends that are noticed significant (white papers):



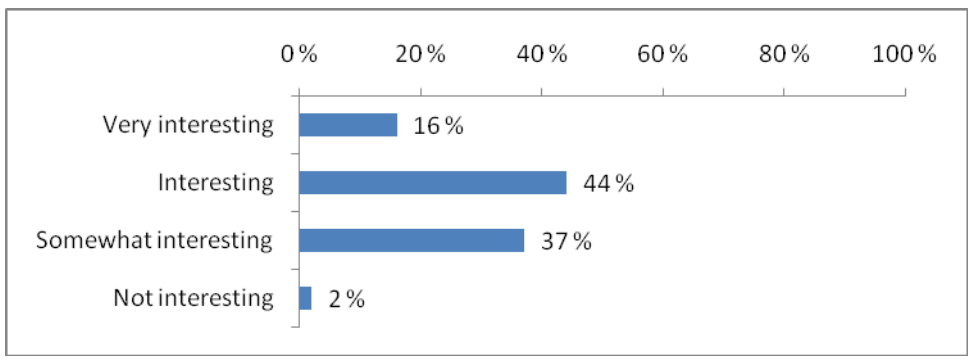
Picture 6.9.



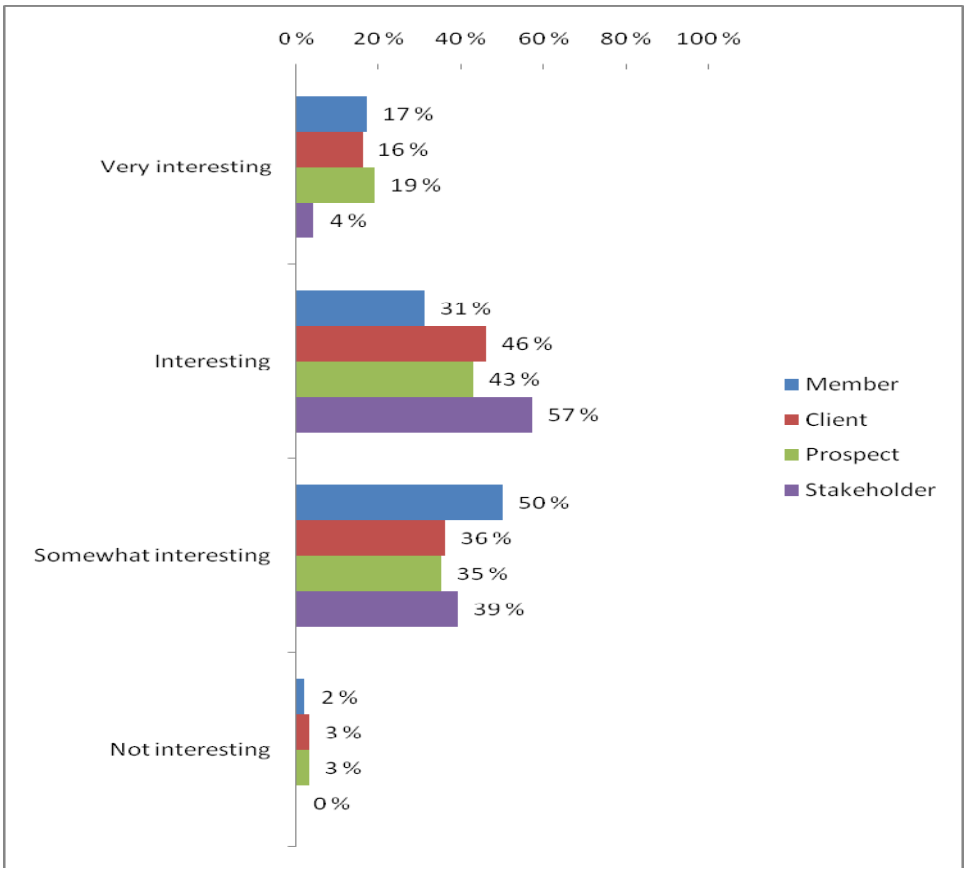
Picture 6.10.

This kind of free information source is seen interesting among all the respondent groups. When combining interesting and very interesting the attraction rate can be evaluated; 79% of respondents are included. Especially smallest companies regard this as very interesting, while other size groups have most answers in interesting (Appendix 4). Stakeholders have relatively big group in somewhat interesting, and they are the smallest group in very interesting; compared to others they do not see this as interesting in general. 83% of members would see this attractive, as well as 80% of clients, 75% of prospects, and 72% of stakeholders. Overall rate of interest is thus high.

Global industry specific news letters of the latest trends in the field:



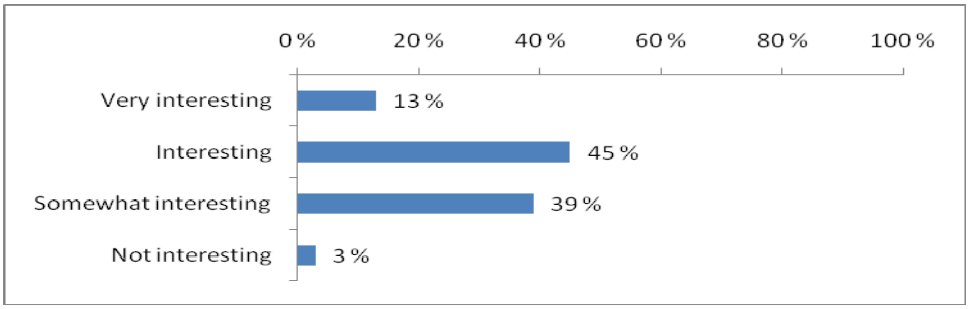
Picture 6.11.



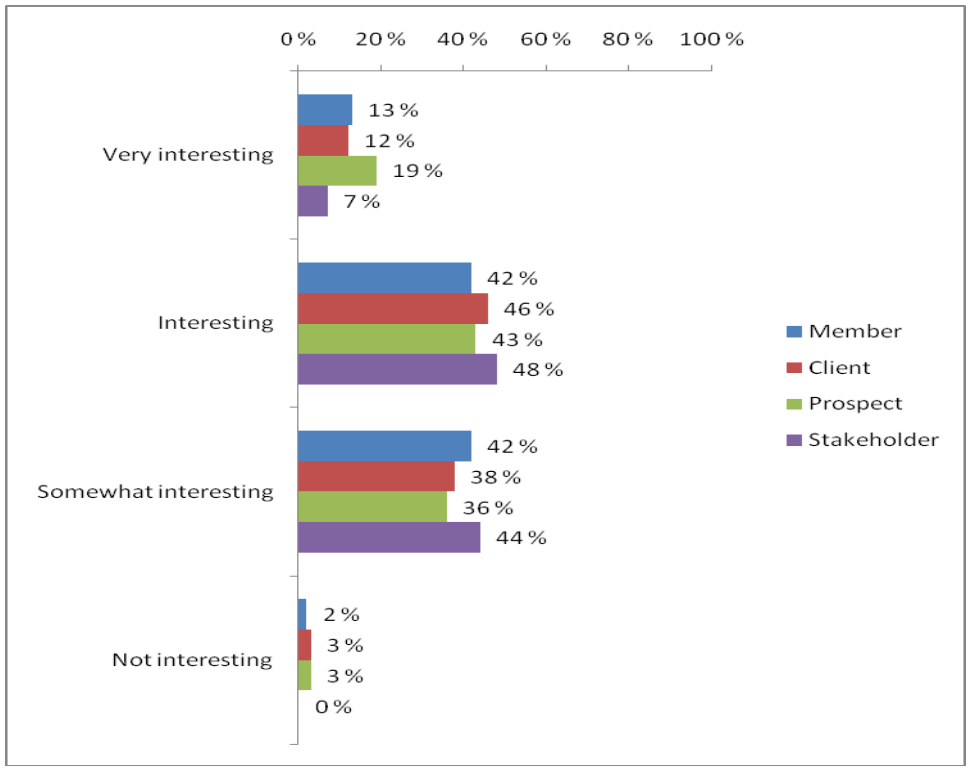
Picture 6.12.

The attraction rate is 60% among all the respondents. This is not seen very interesting; the middle options have gained most of the answers. Still, very few would see this as not interesting at all. Smallest companies regard this most interesting compared to others with 71% of attraction, stakeholders see the least as very interesting with 4%, but most as interesting 57% (Appendix 4). Members are less interested in general, attraction rate is 48%.

Industry specific country reports focused on foresight information and trends:



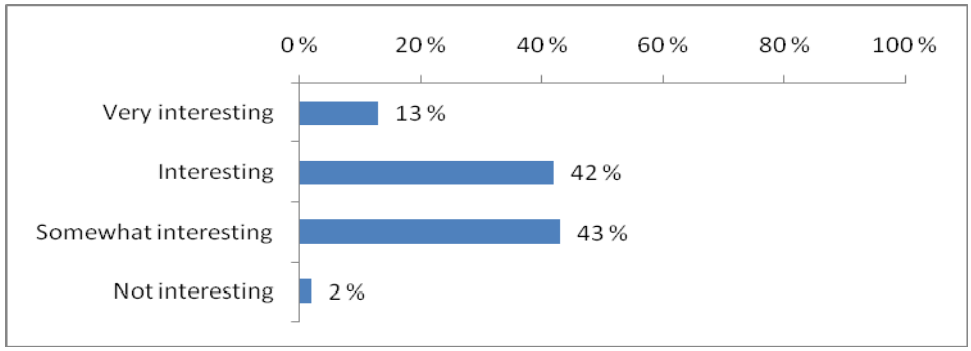
Picture 6.13.



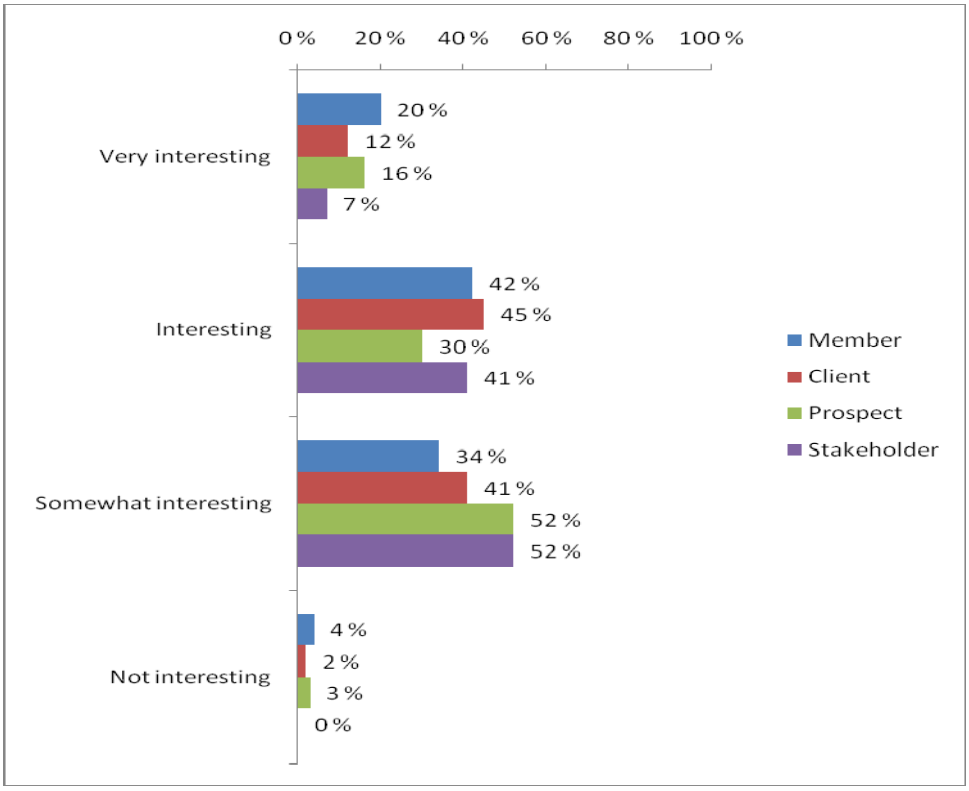
Picture 6.14.

The attraction rate among all the respondents is 58%. The middle options gain again most of the answers, so this is not seen very interesting. Big companies see this least as very interesting 9%, while biggest group is small companies with 22% who see this as very interesting (Appendix 4).

The possibility to explore industry specific trend material in internet portal:



Picture 6.15.



Picture 6.16.

The attraction rate among all is 55%, and somewhat interesting got 43% of answers, so the respondents are not very interested in internet portal in general. The option of somewhat interesting got the most of the answers. Stakeholder group is least very interested with 7%, while members see most with 20%. The attraction rate is 62% with members, 57% clients, 46% prospects, 48% stakeholders.

Global industry specific newsletters were not seen especially interesting, though very few would see those as not interesting at all. Smallest companies regard those most interesting compared to others. Industry specific country reports are not either seen very interesting, and they also attract most small companies. Exploring industry specific trend material in internet portal was not generally seen very interesting. Members were the most interested in this, probably because they know what it is all about; members have their own internet portal and thus they are familiar with it and probably would like to have more services offered through it.

What other kind of information services would be interesting?

Members wanted services like readily sorted data mass with comprehensive regional emphasis, clients were interested in services like business market place portal, blog analysis, industry specific trend meetings, detailed and profound analysis, screened

analysis of own business field, seminars, assessments of European Union decrees etc. The need for detailed reports and expertise of a certain industry field came out also.

"Reports tend to stay in too general level so the added value stays insignificant."

"Consultants who produce this kind of yarn are always 15 steps behind."

Prospect companies mentioned weak signals, market forecasts, different companies´ practices and presenting company cases of the utilization of foresight information and its effects. These can be seen also as triggers to get interested of this topic; prospects might not be that familiar with Finpro´s services. Stakeholders mentioned collaboration of companies and intermediary organizations to handle trend information.

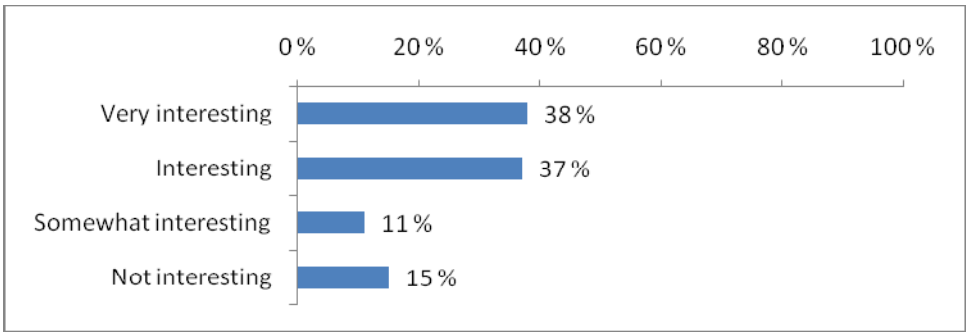
"Trend related information might be so complicated and challenging to understand so it would be good to handle those together with intermediary organizations."

6.1.4. Trend related company specific foresight services

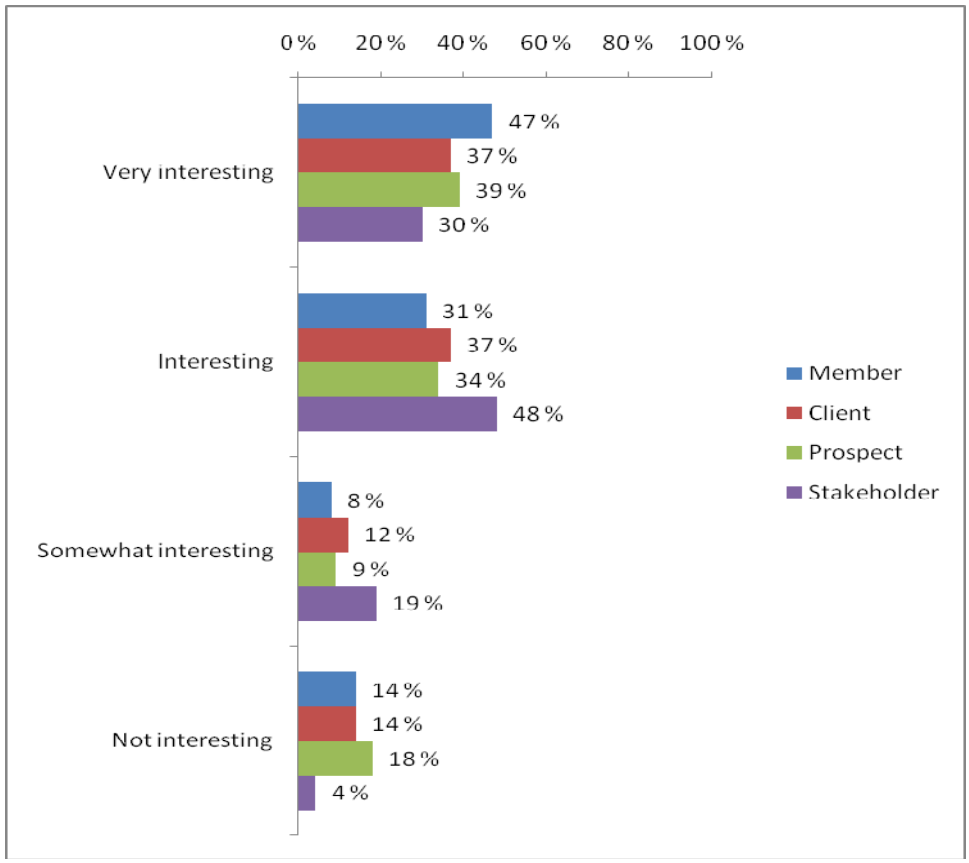
Finpro will offer foresight services based on trend related information. The respondents´ interest rate was surveyed for that. The answers are presented by the categorization of respondent groups. The answers categorized by company size are found in Appendix 4.

Finpro will widen its service offering by services based on foresight information. Which kind of trend related services your organization would regard interesting?

Fee-paying seminars of specific themes utilizing trend related information:



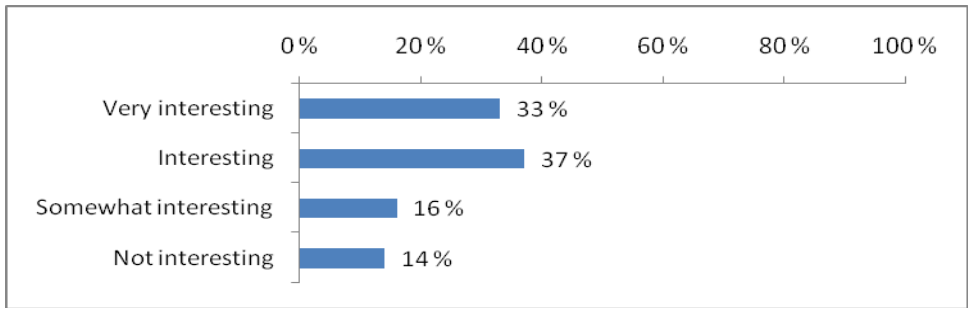
Picture 6.17.



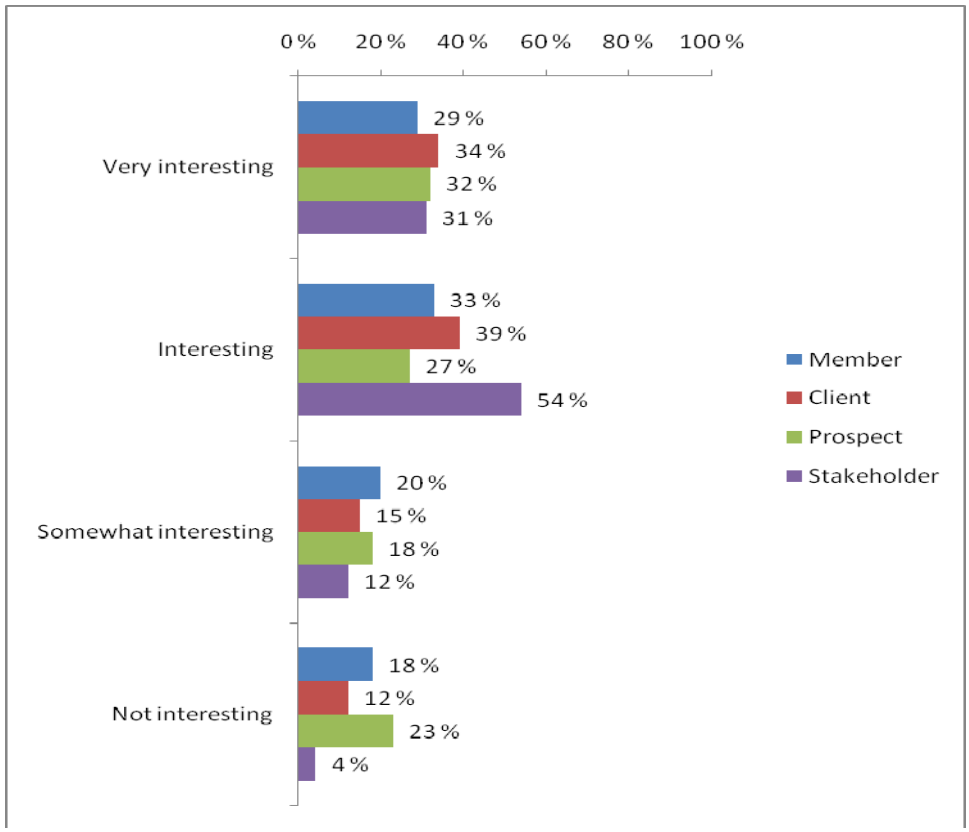
Picture 6.18.

There is seen positive attitude towards this theme; the rate of attraction is 75% among all respondents. The emphasis is again with upper options. Especially members and stakeholders are interested in this with both having 78% of attraction. The rate of not being interesting is still relatively high, so this shares opinions; 18% of prospects are not interested, 14% of members and clients neither, though stakeholders only 4%. Also small companies have 19% or 20% with the option of not interesting (Appendix 4).

Trend related analysis specifically tailored to your organization:



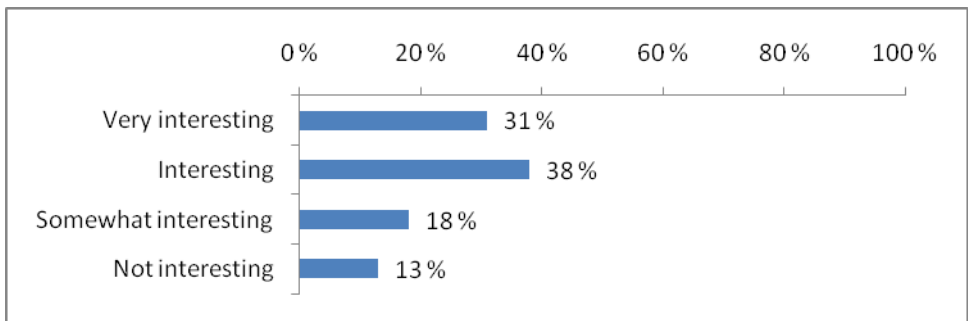
Picture 6.19.



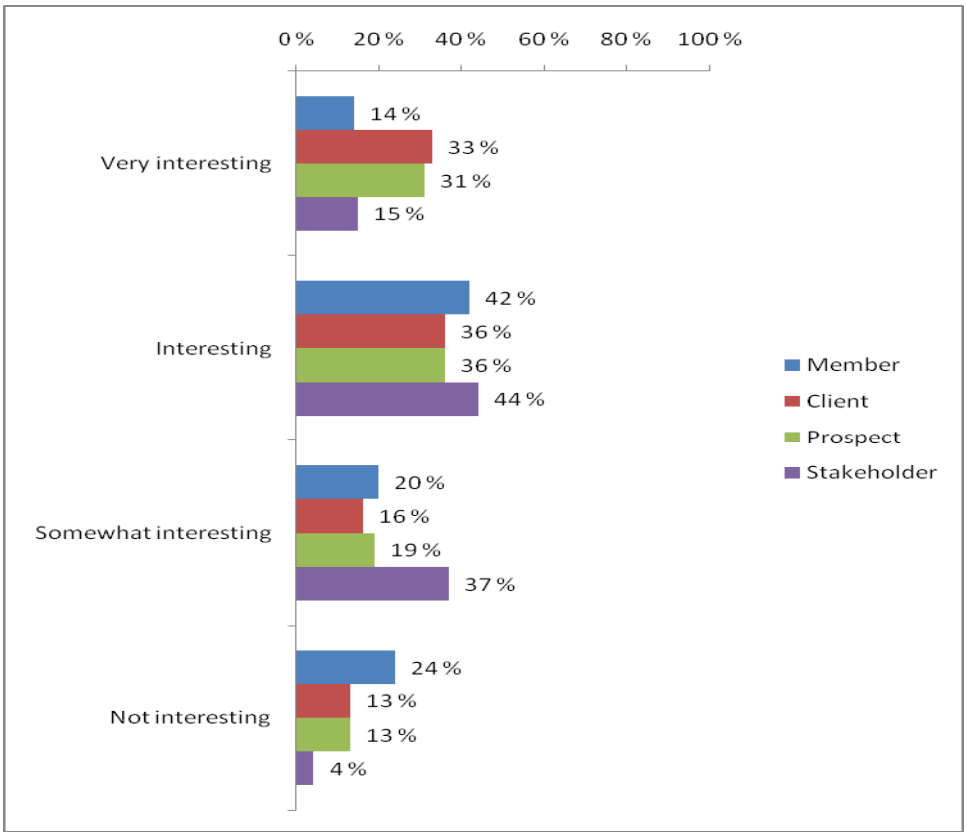
Picture 6.20.

Tailored analysis also gains interest; the general attraction is 70%. Big companies are most interested in this with the attraction rate of 77% (Appendix 4). In all cases, more than half would be interested or very interested put together. Stakeholder group seems to be most interested in this with the attraction rate of 85%, and clients as well with 73%. Members have 62% and prospects 59%. Prospects withdraw with 23% of not being interested in this.

Supporting your organization´s strategic planning by utilizing analyzed trend information:



Picture 6.21.



Picture 6.22.

General attraction rate 69%, with small companies 68% and big ones 73% (Appendix 4). Members see this least as very interesting with 15%, though interesting 44%, and is the majority in the option of being not interesting 24%. Clients and prospects have quite positive attitude towards this, attraction rates 69% and 67%, stakeholders 59%. Stakeholder group is not very eager in this with 37% choosing somewhat interesting.

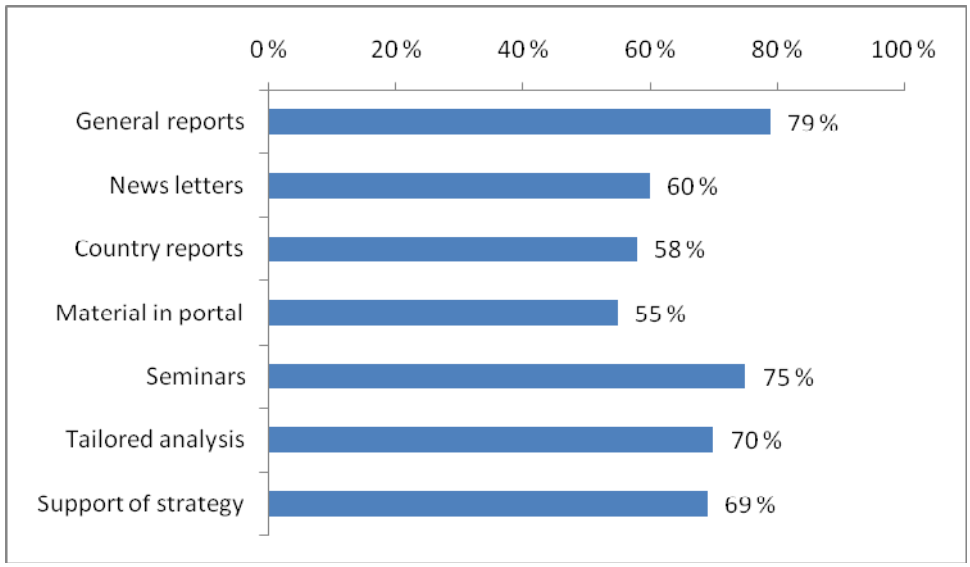
With these trend related company specific foresight services, the interest rate was high. Fee-paying seminars utilizing trend information were seen very interesting among all respondents, but especially among members and stakeholders. This still shares opinions as the rate of not interesting was relatively high. Tailored analysis also was seen interesting, especially among big companies. Supporting organization´s strategic planning by utilizing trend information was generally seen interesting. Co-operation related to foresight services divide respondents quite even. Stakeholders would be very interested in co-operation, whilst members are least. The significance of marketing member services grows. In general there is a remarkable need for marketing foresight services in general level. Especially prospect group asked for presenting business cases and concrete examples, which might tell about unfamiliarity with the subject. Stakeholders emphasized the collaboration possibilities mostly among different respondent groups.

What other information services based on foresight information would be interesting?

In open comments there were especially mentioned own industry field related trends, as well as weak signals, regional trend information, combined information of different industry fields´ trends and outlining interesting and radical scenarios based on those, project consulting, doing analysis by engaging company´s own expertise with external information. Also critical view came out as actors performing in the industry are experts of it, not the outside consultants.

"Who could have better information than the actors within the industry?"

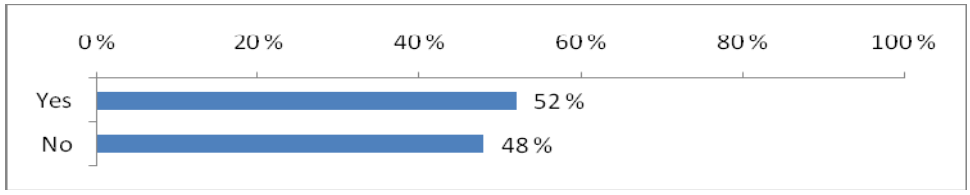
As a conclusion, the general attraction rate (combining options of very interesting and interesting) of different services presented earlier is shown below:



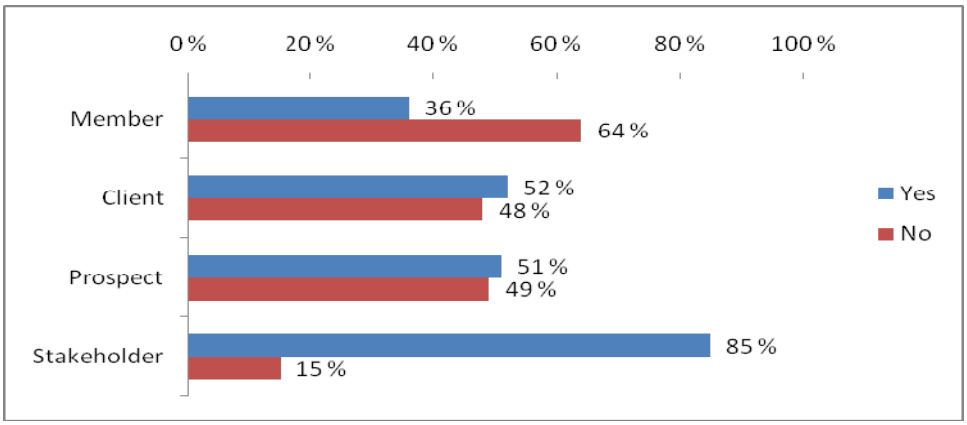
Picture 6.23.

Overall, all these services are seen quite interesting, and especially company specific fee-paying services even more than free ones, excluding general reports.

Would you be interested in co-operation related to foresight services?



Picture 6.24.



Picture 6.25.

By all respondents quite half are interested, half are not. Stakeholders would be very interested in co-operation with 85%, whilst members are least interested with 36%. Clients and prospects divide almost as halves with 52% and 51% interested respondents.

To consider different needs for different services that came out in the questionnaire, SRI International (2010) presents the NABC value proposition analysis, which is a methodology to develop value propositions for projects:

- Identify the marketplace **N**eed for the product or service,
- Define the unique advantage of the **A**pproach,
- Outline the **B**enefits to the customer,
- Pinpoint the **C**ompetition and systematically compare the approach to competitive products or services (SRI International 2010).

Appendix 5 presents the NABC analysis according to the results of this questionnaire divided by different organization sizes. Need is investigated from questions concerning aimed services, and open comments for those. Approach is a response for the need. Benefits are outlined based on the previous sections, and competition part gets an answer from the investigation of the positioning (see Chapter 6.3). The questionnaire did not bring out big differences when comparing different organization sizes in the needs for foresight services. In general, small and medium size organizations are more interested in general, free and easy accessible information services and collaboration possibilities. The main issue is the use of time and money. Big organizations, by their part, are more interested in specific and detailed information services, and fee-paying services like tailored analysis and strategy support. International competitors of Finpro can also offer these services, and in big companies it is generally more common to buy

services. All different kind of services were though seen interesting, as was seen in Picture 6.23. See Appendix 5 for the details of NABC analysis.

6.2. Interviews

The findings of the interviews are presented all together without separating the answers by respondents. Straight quotations of interviewees are marked with *italic*. The draft of the interview is in Appendix 2.

6.2.1. The image of Finpro´s foresight service

The interviewees were asked about the image they have of the foresight service that Finpro is offering. All of the interviewees had already participated in some Finpro events concerning foresight or had had discussions of foresight with Finpro´s foresight team members. So, the theme was more or less familiar to every one. Though, clarification and marketing of foresight is needed for members; the topic overall is not known that well among people who do not consider these questions in their work.

In general the image of Finpro´s foresight service is very good. It is seen as interesting, reasonable, and full of possibilities. But the process is regarded challenging, especially in making sense of the huge data mass, and getting people really to use the tool.

Along to one interviewee Finpro´s foresight service has different intention and focus than their own, but both together complement well the offering in Finland. The new service is seen coming at a very right time and having demand in the future among Finnish companies. According to another interviewee, Finpro is one of the few places where basic terms and the main idea of foresight have been understood correctly, among other things meaning that a signal is seen as a vague small thing of which it cannot be known what it really is, and a trend is born when many small things get together - many parties in foresight field do not separate those.

"That is why I am so grateful every time I visit Finpro because we can talk about the same things. And you have even been able to operationalise this, can you hope more!"

6.2.2. Finpro´s foresight process

The picture of the process (see Picture 5.5) and the service offering (see Picture 5.4) were presented to the interviewees and they were asked to assess it and if that is in line with what Finpro is doing and should do.

Foresight was seen suiting Finpro well and going well along with other Finpro activities. The service offering was seen to be like a typical consulting company has, including members, projects, and a bit of goodwill. Publishing white papers and articles

was thought to increase the general interest in the need of foresight activities, and Finpro was seen to have credibility to do this. Though, there came also criticism for not duplicating actions: many parties publish general reports, so Finpro should think what is useful to do by themselves and what might be found ready from other sources. The recommendation was to focus mostly on client assignments and Foresight Club, because Finpro is well-known and liked among the company field, and in providing societal level foresight reports Finpro is not that unique compared with others.

"Finpro has a good tool; the rest depends only on the usage of it."

The process was seen well-thought and well-structured, and the service offering logical. Collecting signals was not seen as a problem but that what to do with all of them: analyzing and combining the signals and interpreting those in a view of an individual company. Other challenges that came out were:

- Context-relatedness of signal collecting: signals that are to be chosen depend only on the interpreter, i.e. cultural and personal aspects of collectors.

- Motivating people to work continuously: employees might participate eagerly in the beginning but little by little get bored, and then the whole process flops.

- Marketing: how to awaken up companies´ interest.

- Offering more than just "nice-to-know" information.

- Profiting financially. Services are not easily scalable because every organization is different and needs always some tailoring, and the outcomes are not normally so surprising that customers would like to pay for those.

Finpro mainly profiles itself as helping companies to go abroad from Finland. Foresight process by its part brings information from the world to Finland. This was seen cumulating the overall benefit in a way of helping Finnish companies to understand global business and thus also to get there. Foresight was seen giving tools to handle continuous renewal, quick changes in many dimensions, and the management of the complexity, and as well helping to make decisions faster.

6.2.3. Foresight field in Finland and Finpro in it

The next topic was the foresight field in Finland, and the interviewees were asked how they think Finpro positions in it. They were also asked about which other organizations do foresight, how Finpro differentiates from those, and what it could do to differentiate even more.

"Generally speaking foresight in Finland is only white paper stuff."

Finland is seen to have very good upper level foresight system to produce foresight or future reviews: Tekes, Sitra, VTT, and Future Research Centre in the University of Turku are seen the most important actors in that, and all also exploit international and general foresight reports in their work. But the need is to develop the process of implementing foresight information in practice and for companies. It is thought that there is more foresight in the economical and macro level, but lack of actors who could be transforming it to companies. So, there is seen a big role for Finpro to bring foresight to practical level, and the upper level foresight report producers could be a link in that. In Finland there are not many actors who could offer as big international system and as wide material as Finpro does, so this is seen a unique opportunity if it is realized like this.

"Finnish foresight is that economists think over big and serious things and commercial side people get more interested in the top foam of the waves. Both should and could be learning a lot from each others."

Foresight is seen to have the purpose of awakening interest, causing constructive conversation, and bringing ideas forth, because in Finland there is no general atmosphere to enable this kind of discourse. Especially the intercourse between companies and a third party is seen important because increasing multidisciplinary conversation causes that the new ideas get born.

"The actors do talk a lot, and talk about good things, but they do not do anything."

Implementing in practice the findings of foresight actions is seen as most important target. There is noted a need for real utilization of foresight in the customer level, for example one way could be handling the signals with a client and thinking of the effects together.

"Until now it has been official work groups´ official studies. That is already "has been" information in the moment you should get the most out of it."

With foresight it is seen important not to have any majestic authority who tells how to do things, but to get people truly involved in processes and to do it actively, whether in communities, networks, companies or in collaboration with others. Trendwiki is seen a very intelligent tool because there one can see new small phenomena and consider their significance, and also have an overall intercourse between different parties.

According to one interviewee, Finpro´s image might show a bit old-fashioned in Finnish foresight field, because until now foresight has been accomplished only through

research and thus has not showed outcomes which would interest big audience. Finpro shows as a stable and big organization, so considering credibility Finpro will win small and more agile companies. Companies have a need for foresight and very few can do it by themselves, so it is seen good that this kind of trustworthy party provides it.

"We bring the world for you!"

Finpro seems to differentiate well from other actors with its global network, good market expertise, and an intention to take foresight to practical strategic level in companies. The idea is that even though a company would not be willing to internationalize, it is still important to understand what goes on in the world, and that is what Finpro can offer. To get the audience aware of how Finpro differs from others and what different kind of services it can offer, a big campaign and headlines are needed.

It is seen that to differentiate from others Finpro should make a clear separation from them; to choose its side and focus, form a clear message, compare and define the real difference from others, bring out the advantages, and to stay there not messing all around. Taking the societal level too much into consideration might confuse the message.

"Clear difference, clear message, clear direction. Difference rocks, that is for sure."

It was said that Finpro differentiates already with the client assignments and the ability to understand local markets abroad. It was seen that it should take the role of delivering the message to clients, and bringing out triggers to waken up and activate Finnish companies.

6.2.4. Development ideas for the foresight process

The conversation got back to Finpro´s foresight process and its development. The interviewees were asked about how in their opinion Finpro should develop its foresight process so that it would be as useful as possible for Finnish companies. Applicability in practice was seen as an important factor in this theme.

"Don´t fuss with signals but take the next stage already!"

Besides concentrating on signals, either collected by themselves or others, it was recommended that Finpro should focus its energy more on the benefit of the signals for Finnish industry, society, and companies. Finpro should have a stronger role in providing possibilities and connecting foresight to Finnish industry field. One recommended option was to consider buying some information, and not producing all by itself. Also utilizing different social media methods was seen as a usable idea, like

exploiting blogs and big user communities. The possibilities of crowdsourcing came up in many conversations, both utilizing it either in signal collecting or in analysing those. It was seen recommendable to think what is useful for Finpro to do by themselves versus what is already done within this sector, and to consider what other information sources could be used.

The employees of Finpro collecting signals were in the end seen somewhat similar in nature, so it can be possible that they do not notice all the things, or unconsciously filter certain type of phenomena. It was seen worthwhile to consider hiring some outsiders to contribute the process also, for example freelancers with totally different competencies, or empower "common" people as trend scouts to observe globally. According to one respondent it is paradoxical that when collecting signals, a person should not think of whether a signal is useful for a company or not but to be open minded for all signals; with foresight the difficultness is with seeing to far future, because too radical ideas might be too early to convert to clients´ needs today. Companies tend to look very close.

"Yes, information is good, methods are good, and the tool is good, but... so what?"

Developing the expertise and the process more towards the end of the process, and focusing mostly on insight was seen important according to some interviewees. Finpro could concentrate on the client focus, and the procedures could be really planned for very practical level. One interviewee presented an idea of some interactive or challenging element which would be needed to get the interest of the companies; as a unidirectional process Finpro would not get the most out of it, and tight collaboration with clients helps as well to increase the knowledge in Finpro about what kind of signals to search, what themes are needed more, and who is interested in what. It was seen a bit time wasting for Finpro to do all background work by itself; it would be better to create the understanding together with the focus group. Finpro should also remember to evolve and renew itself continuously, not to stay with the old and good for too long.

It was seen also as a challenge for clients to receive foresight related information or services; the utilization of foresight services depends on the competencies of client organization also. Clients need to have someone who has an ability to do far-reaching work, time to think of this kind of things, and an ability to see a bigger picture.

"Finpro cannot chew it obvious for all in every case."

So, to find a person in client organization who would see the value of foresight and has an innovative personality is essential. One concrete idea was to foist in designer organizations´ networks and magazines, because designers are usually the ones who can "sell" new and surprising ideas to the companies through their own work; that is like assimilating foresight to common business through creative persons´ work.

It is also seen important to think of different client segments for different foresight services. Same contents might work for all until certain point but then it has to be tailored, even inside a company as for example product development, marketing, and design sections need different kinds of things. The used material might be the same but different kind of interpretation would be needed. It was thought that Finpro might face difficulties in taking care of all different clients and industries, and added to that different positions and persons in the client companies. New way to think of client segmentation might be a solution.

Considering members, the member portal was seen as a good place to observe foresight findings and then ask for more if interested. It was reminded that some test-driving among members is needed to get them involved, and to assure of the final mode of action. Presenting business cases, specific industry field news, arranging seminars and workshops are seen as good awakeners for members. It is important to stay in concrete level, present clear advantages, and have a lot of intercourse both in and out of Finpro.

It was said that Finpro should give more consideration for suitable partners, because it cannot be professional in every field. It was thought that Finpro could manage the process and lead the projects, but it should acquire a good partner network especially to accomplish client assignments. It was also seen important that Finpro would not forget its main services because of foresight; foresight could be seen as a means of marketing.

6.2.5. Collaboration possibilities

The last theme of the interview was collaboration, and the interviewees were asked about what king of collaboration possibilities they see within Finpro and their organization considering foresight activities.

"There are a lot of different kinds of options. We just have to start doing!"

In general all of the respondents see it possible to collaborate with Finpro in doing foresight activities. Buying services is also possible if they are promoted well and seem to be useful and interesting. More options were seen in contributing to Trendwiki. Some saw it possible for example to appoint persons in their organization to feed signals to common Trendwiki.

"It would be nice to have an external brain to filter the information mass to support our own scanning."

Also collaboration in sense-making through co-produced white papers and articles is seen as a good way to transform benefits from commercial side to the society level also. Taking along people with different backgrounds; information specialists, web experts,

sociologists, designers etc, either to collect signals or to do sense-making, was seen reasonable as it might bring diversity by different kind of view and vision of the world.

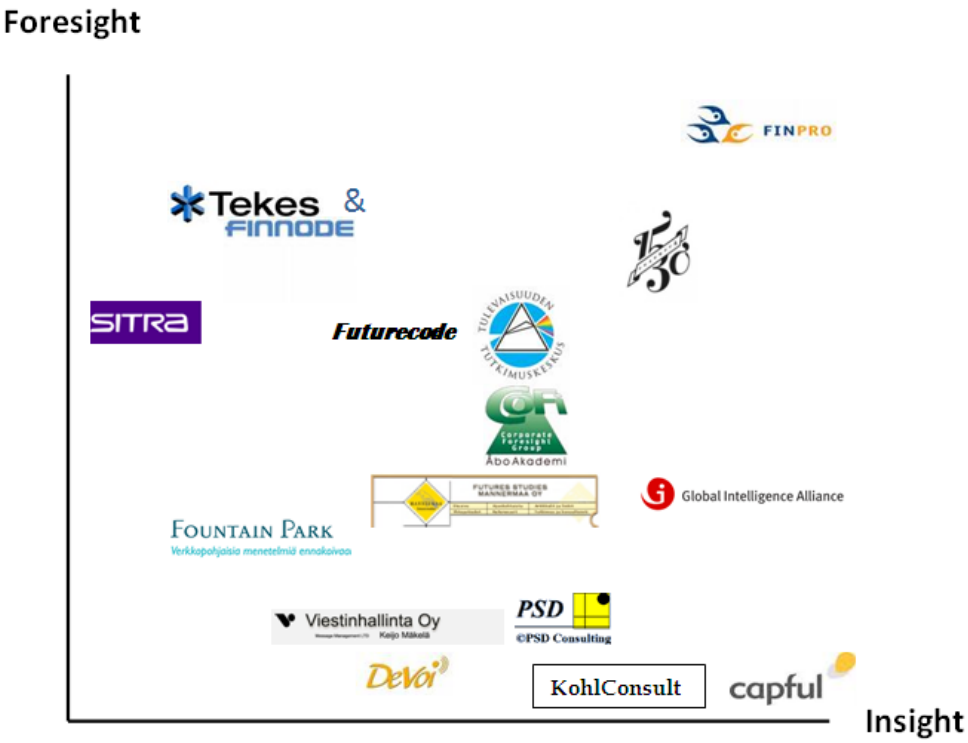
"It would be good to open signal collection for all of us, to reveal the raw data there, then we could do sense-making and analysis by ourselves."

It was said that there is not any competitive situation between different parties among foresight, because all have different logic and needs, and have clearly found their different focus and role complementing each other. Improving collaboration was seen essential, though. It was seen brilliant to have common system for MEE Corporation because it brings added value to whole Finnish economy to be able to offer early information about what is going on globally.

"This can enrich the whole innovation ecosystem in Finland."

6.3. Finpro´s positioning

One research objective was to find out how Finpro could differentiate with its services from other foresight players. One of the questions in the questionnaire was about other actors in the foresight field. To find out the real competitors of Finpro in the foresight field, all the companies that came out in the questionnaire were listed, and irrelevant ones were cut out. After that the main characteristics of the remaining ones were considered and compared with Finpro, and as a result came a listing of real competitors of Finpro in Finnish foresight field. This listing in its details is in Appendix 3. Picture 6.23 shows these competitors positioned in Insight / Foresight axes by the essence of their actions. In this, insight means that a company offers company specific strategy support foresight work for individual companies, and foresight means focusing on collecting signals and information, doing general analysis, and doing anticipatory foresight work in a more general level. As can be noted in the Picture 6.23, Finpro is the only one which is strong in both providing insight and doing foresight compared with these other actors.



Picture 6.26. Finpro´s positioning in the foresight field of Finland.

The main competitors of Finpro were defined based on this comparison of different foresight actors. Most similar services to provide to Finnish companies have Tekes, 15/30 Research, and Finland Future Research Centre. The NABC analysis was presented in the end of the Chapter 6.1 to compare the questionnaire results by different company sizes. The main competitors and Finpro were also compared by NABC analysis, and the details can be seen in Appendix 5.

As a conclusion of the NABC analysis of the main competitors can be said that Finpro is unique with its offering in foresight. Tekes uses foresight mainly in support of its own strategic planning and to consider future funding and research topics. Tekes works mainly as a facilitator and a trigger for companies to start foresight work by themselves, or to take part in national programs. Tekes provides couple of hours lasting short signal sessions for individual companies, but they are not as profound as Finpro´s strategic foresight work, which lasts 4-10 workdays. They use only a couple of signals, for example an interesting product launch, to start these sessions, while Finpro collects a big amount of signals, forms trend subjects from them, and starts foresight work based on this very wide material. FinNodes are collaborative organizations of Tekes, Finpro, VTT, Sitra and the Academy of Finland, and they are a global accessory for foresight work. It has to be remembered that Tekes is very well known among Finnish companies, though it is not very known as a foresight actor.

Finland Future Research Centre, by its part, has a very academic approach, focuses on research, and provides mainly general level foresight reports and publications, conferences and seminars. It provides some individual company specific services, like education, strategic vision and scenario projects, but mostly formats to back up companies´ future work processes. It has launched a Futures Focus education and development service, which is meant for companies and also has training to observe weak signals, and that can be seen as a real competitor for Finpro. Finland Future Research Centre has a very credible image and thus is a good option for companies to start doing foresight work. It is most respected future instance in Finland and known also internationally, and it has wide collaboration networks. However, it does not have the same kind of own wide signal collecting method than Finpro does, and does not have as much intention to focus on individual companies´ strategy work.

15/30 Research has tailored services for individual companies, but it focuses on the young and consumer trends. It collects signals widely through its open and voluntary Collaborative Insight Space community, makes reports and tailored research, refines signals and trends to concepts and commercial innovations, arranges seminars, and provides tools and methods for companies to collect signals, as well as helps in creating foresight culture in a company. 15/30 Research is close to Finpro services, but its focus is limited, it does not offer support for strategy work in many industry fields, and it does not collect signals by its own. It has done marketing well, makes a big noise of itself, and is thus well known. However, it cannot provide very comprehensive services, and it bases its process on voluntary network, which cannot be trusted as highly committed to contribute the process like in Finpro, and thus the content is not very reliable. Therefore, Finpro is the only highly credible organization offering both comprehensive foresight work, and profound insight to support individual companies´ strategy work.

6.4. Assessment of the results

The questionnaire was sent to a big sample covering more or less the entire field of Finnish economy, so the research can be seen relatively objective. Though, the sample was picked up from the databases of Finpro, so there is always some relation with Finpro, and that defines the sample. The respondents are also mainly in the field of industry, which might affect to the results. As well they may have a similar kind of education and status in a company. But thus the results of this study can be generalized to respond the field of Finnish economy. It was impossible to select persons whose tasks would be related to strategic thinking, which would have helped to understand the purpose of this research, and thus might affect to results, but that was not even a purpose. However, at least reading the subtitle increases the consciousness of foresight, and answering to the questionnaire might cause respondents to really think of these questions, which increases the overall interest. So, questionnaire worked also as marketing for Finpro´s foresight.

The questionnaire and interviews were planned on the basis of Finpro´s needs, so the results are not clearly fitted to any theoretical frames presented earlier in this study. The results of the questionnaire are not analyzed by any statistical methods, because it is not seen relevant in this kind of research. The aim was to survey the interest and the opinion of the stakeholder groups, so there are no research methodological intentions to prove the results, and thus testing is left beyond. The questionnaire was not tested with a small sample before implementation, even though it is recommended. It was however improved iteratively by the members of foresight team. Afterwards it is easier to think which kind of questions would have been good to gain the wanted information. In this case, the questions should have been leading to more detailed answers to investigate the phenomena more profoundly. That is why an extra-questionnaire by e-mail was sent to a small sample of respondents.

The questionnaire got small critic from the respondents for example of the language used. Some said that it was meant to people with higher education. Some did not answer to questions because they thought they were indicated only to commercial companies, not their kind of organization. The questionnaire was in Finnish, because otherwise it would not have reached the wanted audience, but that also restricted some people from answering. In English it surely would have restricted more. The program used to accomplish the questionnaire was not functioning perfectly, because many people got the e-mail of the questionnaire many times. That of course is harmful in the time that people are drowning in their mail boxes, so that might have irritated people, caused negative image, and thus prevented them from answering. Luckily this was noted immediately because of the feedback of the respondents, and fixed early enough to avoid doing the same mistake with all. Also it was thought that excluding the neutral option (nothing to say about this topic) from the questionnaire form would result in capturing all the tendencies of the responses, that answers would always be either positive or negative. But, it was forgotten to ensure that a respondent has to answer to all of the questions before proceeding in the questionnaire, so some respondents just left those question without any answer. This is taken into account in analyzing the results.

There was an intention to interview also some future researches, but that was not possible. The experts of future research would have surely brought an interesting viewpoint in assessing Finpro´s processes and intentions. Also with more time all the results could have been analyzed more profoundly according to different samples of the stakeholder groups. Finpro´s positioning in the foresight field of Finland was sorted out with the help of Finpro´s foresight team´s knowledge, and the information these companies provide in their internet pages by themselves. Thus their procedures and services cannot be known for certain or very profoundly, which affects to the comparison. Main characteristics, though, can be thought to have found, and thus the findings are good enough to compare different actors in this field; in the beginning there was a hypothesis that Finpro differentiates, and it was found out that it really does.

7. DISCUSSION

This chapter includes the reflection of the empirical study to the previous theoretical section. This chapter also includes the overall assessment of the study. First, the results of the questionnaire and interviews are reflected in the light of the theory part of the thesis. Also all the research questions determined in the beginning of the study get their answers. Then the whole study is assessed and its success evaluated.

The starting point for this thesis was to find out how Finpro should organize its foresight service in order to satisfy the needs of all stakeholders, and to differentiate from other foresight players. This main question divided into three sub-questions: Q1) what expectations different stakeholders have about foresight services? Q2) what should be the business model for foresight services? Q3) how should Finpro differentiate with its services from other foresight players? The findings for these questions will be concluded in the next sub-chapters. The results of the questionnaire are utilized mainly for Q1 but also for Q2. Interviews got an answer for Q2 and Q3, and the NABC analysis (Appendix 5) especially for Q3.

7.1. Stakeholder interest and need for foresight services

Finpro´s foresight activity was seen as interesting, reasonable, and full of possibilities among the interviewees, but the process and its development was regarded challenging. The questionnaire showed that organizations do monitor their business environment. Practically all respondent companies use free and open-access sources, but especially small organizations concentrate only on those. Fee-paying services, by their part, attract mostly big companies, which is a natural consequence of the normally scarcer resources of smaller companies. Almost every organization sees that they have been able to exploit the information gathered by the monitoring activity in the guidance of their action, although most of them have not appointed employees to do this monitoring; only in the big companies the majority say that they have appointed human resources for this.

Most of the respondents have experienced significant or very significant changes in their business environment in the last two years. Big organizations explore the environment most and also have resources for that, and that is why their level of consciousness might be higher to notice more changes and see them as more significant than smaller ones. Stakeholder group as well saw most changes and most significance in them compared to other respondent groups, but that might be because of the nature of their organization; many of them are research, development, or innovation organizations which explore and investigate continuously to meet their own demands. The majority of

the organizations, despite the organization size, think that they have been able to react to these changes quickly enough. This might be a result of the environment monitoring activity, which almost all organizations are doing. So, organizations experience monitoring the environment beneficial to enable reacting to environmental changes; the advantages have been taken into practise.

Day & Schoemaker (2004) presented a model of the peripheral vision as a learning process (see Picture 2.4). Most of the companies that answered to the questionnaire do scanning and interpreting of the information from the environment. The difficulties seen were in scoping; how to get a wider view, and understand how changes in other industry fields affect to their own industry. There had been also difficulty in putting the information into practice: in a model moving from interpreting into acting, and learning and adjusting. There is a certain role for Finpro; it has a multidisciplinary view and expertise of many industries both in Finland and globally. It is a real advantage for Finnish companies, who focus on certain industry, to get an overall view of current phenomena in the light of future possibilities. Finpro employees also are professionals in interpreting small pieces of information, analysing those and integrating new knowledge in the former information.

In the spring 2009 Finpro and Boardman 2020 (2009) did a collaborative investigation of growth companies´ view about internalization and growth in the current rapidly changing economy. The most important individual challenge and development target that came out was the companies´ ability to identify early enough the requirements for change in business caused by the quick changes in the business environment. (Boardman Oy 2009, p. 13.) The results of the questionnaire in this study show that companies might have learned something; even though there have been a lot of significant changes in recent years, companies regardless of their size have been able to react to these changes quickly enough, and that might be owing to the growing consciousness of the importance to monitor the business environment; the results of that activity were seen possible to utilize in practice.

As a conclusion, the majority of the respondent companies:

- Monitor their environment.
- Have been able to utilize collected information in practice.
- Have noted significant changes in their business environment during last years.
- Have not appointed human resources to systematic monitoring, but still
- Have been able to react to these changes quickly enough.

The majority of Finpro´s members, as well as prospect companies, are quite small, and small companies have not appointed human resources to monitoring systematically their business environment. So, it would be good to offer this kind of service especially for them. Services for members have to be well-thought, because there is a demand in view, and it is very important to gain their loyalty also considering foresight activities. Both Finpro and its members would gain. This kind of service could also attract prospective companies to become members or clients. Sense-making services were seen very interesting, as seen later in Picture 7.1. Though, most respondents think they have been able to react to the changes quickly enough, so sense-making in general has succeeded fairly well.

The questionnaire results showed a positive attitude towards scenario working in all respondent groups, but especially stakeholders were very eager in that. That can be because their organization type in most cases supports this kind of work, or they are already very familiar with this. However, that could be a very good way to deepen the collaboration or start new partnering projects within Finpro and stakeholders. General opinion was that scenarios are important and useful tools to outline future possibilities, but making them was seen very difficult with scarce resources. So, Finpro could be a credible facilitator of scenario work among all organizations.

Rohrbeck et al. (2007) presented different elements of strategic foresight (see Picture 3.4). Finpro is definitely in strategic level with foresight as it uses almost all elements in its work: technology intelligence, political environment foresight, and consumer foresight. However, the questionnaire showed an interest towards comparative information of other companies (cases, examples). Finpro has not yet taken into consideration one element of the model: competitive intelligence, which is assessment of competitors and identification and assessment of products and services in development. Finpro has deep knowledge of many industries and companies, and an ability to integrate the information, so by offering relevant competitive intelligence information Finpro could differentiate even more from others and raise an interest of companies; who would not be interested in this kind of current “insider” information combining many aspects of the field.

Concerning trend related information, it was noted that technology, legislation and decree, and especially environmental issues related trends were seen most interesting among all respondent groups. These days all the companies have to pay attention to environmental issues more than ever before, at least because of global warming and the decrees of the European Union. It would be reasonable to offer general reports of these themes for all. In general, all the respondent groups were especially interested in their own industry specific trend information, as well as multidisciplinary reviews. Very specific industry field reporting could be realized through tailored analysis for individual companies, and others by screened information gathering and analysis.

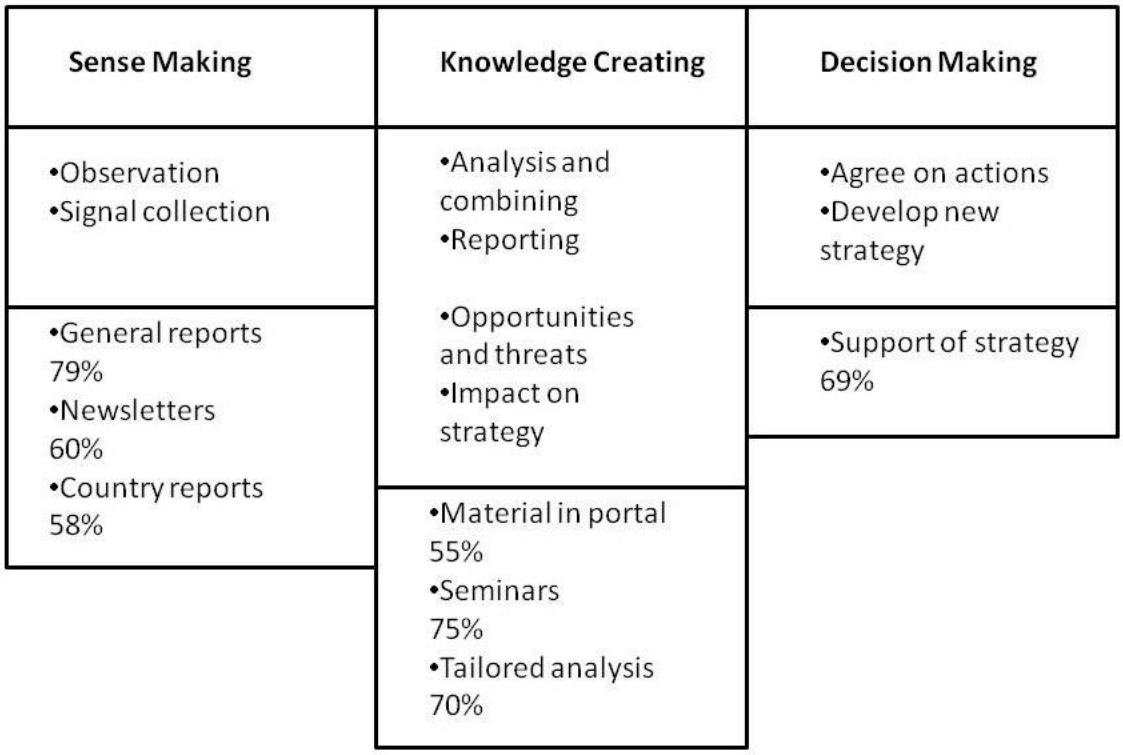
General reports of current trends were seen most interesting among all respondent groups, and especially among small companies. Stakeholders might offer or practice this kind of activity by themselves already, and big companies might already have access to these. So, these kind of free services are mostly considered interesting among smaller companies and thus it would be good to plan the offering to suit at least to their needs. With the trend related company specific foresight services, the interest was high especially among big companies.

To consider different ways of how foresight information can be utilized in Finpro´s client companies, it is useful to think of strategic roles of information usage Choo (2006) presented: sense making, knowledge creating, and decision making (see Chapter 2.1). Choo (2006) presented that organizations use information to make sense of the changes in their environment which continuously generates ambiguous signals with multiple interpretations. The outcome is the perception of an opportunity or a problem. Then organizations generate new knowledge; their existence is based on the ability to utilize it for meaningful outcomes. Knowledge creation starts when new knowledge is needed to solve a problem, and the result is a new insight that helps to make sense of a problem or to start a new course of action. Then organizations search for and evaluate information to make decisions and act accordingly. (Choo 2006, pp. 2, 249 - 250.)

Finpro´s foresight process (see Picture 5.4) can be adapted to Choo´s (2006) model of strategic information use in a knowing organization (see Picture 2.2). Picture 7.1 shows the different arenas of strategic information use of Choo (2006) and the stages of Finpro´s foresight process divided accordingly. The question is how the foresight information could be utilized to support client companies´ use of strategic information. In the bottom of the picture is added the percentage of the stakeholders´ interest (see Picture 6.23) for different foresight services asked in the questionnaire, fitted in the frame.

Sense making and knowledge creating are partly overlapping with their purposes and processes. Sense making starts with observing changes and collecting weak signals globally. Companies do not usually have a lot of resources to handle this, so Finpro offering can help them to make sense of the environment through offering reports and newsletters with the focus of foresight. New knowledge is created by analyzing and combining collected information, generating reports based on that, and identifying opportunities and threats caused by changes. Taking information to this deeper analyzed level, and combining it with former experience enables knowledge creation, compared to the general reports that help sense-making. Multidisciplinary expertise that Finpro offers ensures comprehensive view of different phenomena, compared to surveys made by single-issue companies. Material in portal and seminars enable collective knowledge creation by intercourse and networking. In the end, the most essential issue is to create knowledge to determine the impact of the changes on the company´s strategy, and take

it to practise, i.e. evaluating all the analyzed foresight information in the light of the individual client company to help its decision-making. Following actions are to be planned and agreed, and a new strategy is to be developed if needed.



Picture 7.1. Finpro´s foresight process in the frames of Choo´s (2006, p. 250) knowing organization. The attraction rate of services from the questionnaire is added below.

It is worthwhile to take into account all aspects of strategic information use according to the results of the questionnaire, because all are regarded interesting among different stakeholder groups. Picture 6.23 shows that trend related company specific foresight services, which have been planned to be fee-paying, are in general regarded more interesting than free trend related information services (reports, newsletters, portal). Among all respondent groups there is a notable interest in foresight services; all of the options got the interest of the majority of the respondents. Even though this is quite new perspective for environment monitoring, the need for it has been recognized and thus these services probably have a warm welcome.

Main ideas:

- Free services and networking especially for small companies.
- Collaboration with stakeholders.

- Specific and detailed tailored services for big companies.

- Marketing, especially member services.

- Effort to fee-paying services and planning their suitability to different stakeholder groups with different resources and intentions.

Kettunen et al. (2007) presented earlier that foresight information can be used in different ways in all the phases of the innovation process (see Picture 4.10). General reports, newsletters, and country reports can work as triggers to get new ideas to develop new concepts or plan new products. Country-specific reports and tailored analysis could be used in the phase of new product development and market entry. Services in support of the strategy are for the overall business planning. Material in portal and seminars support overall networking, and facilitate collaboration, changing thoughts, and creating ideas.

Stakeholders are very willing to collaborate with Finpro in doing foresight activities. Especially contributing Trendwiki and using it together, or at least having a common signal base was seen reasonable. Co-producing white papers and articles is a benefit for the society, and was not seen useful for Finpro to do it all alone, but it was seen also as a good marketing method for other services. Taking along people with different backgrounds brings diversity. Improving collaboration among different parties was seen essential as well. It was seen reasonable to have common system for MEE Corporation, because it brings added value to whole Finnish economy, and enriches the whole innovation ecosystem.

7.2. Suitable business model for foresight services

Finpro´s foresight process follows exactly the description that Hiltunen (2009) presented in Picture 4.11. Also in Finpro it is thought that real advantage of using weak signals requires collecting and registering them actively. Thus Finpro employees are encouraged to monitor the environment and collect observations to Trendwiki continuously besides their every day work. Like Hiltunen (2009) emphasised, Finpro sees as well that the power of weak signals is in their mass, so it has made clear to the employees that vain self-criticism should be eliminated in selecting signals, and the more signals collected the more relevant trends can be formed. To support individual company´s strategy work Finpro also tests strategy in different scenarios formed by the results of foresight work, just like in the model, and based on that possible development needs are defined and new strategy is developed. So the process is well-planned.

Vitt et al. (2002) presented the BI cycle, by which companies set goals, analyze progress, gain insight, take action, measure success, and start all over again (see Picture

2.6). Finpro´s foresight process follows the model until taking insight into action. By now, there have not been methods to measure, or better said to evaluate the effects of the foresight work for Finnish companies or Finpro itself. Numeric measurement can be difficult with this kind of process, except for measuring satisfaction of the clients after each project, but developing soft methods to evaluate this would be reasonable.

According to interviewees, foresight was seen as an activity Finpro definitely should do. Doing general reports was seen increasing the interest of foresight, and Finpro was seen to have credibility to do that. The challenge is in preventing the duplication of actions that other parties are already doing or might have better resources to do. Focusing the main efforts on client assignments and member services was seen reasonable, though. The process was regarded well-thought, well-structured, and logical. The biggest challenges were seen in analyzing and interpreting signals for an individual company, and offering truly relevant refined information for them. Also the influence of personal characteristics of individual collectors, motivating every one to continuous work, marketing to companies, and profiting financially were seen difficult. It was also said that Finpro should not focus too much on collecting signals but more on analyzing those, as there are many actors who could do it and have done it as well. Collaboration among different actors was seen as the key thing to do. So, Finpro should concentrate on the client focus and plan the procedures for really practical level. Using the contribution of external actors, like designers, was seen recommendable to get more audience. It is important to think of different client segments for different foresight services, not offer all for everyone. It was seen important that members get really involved in foresight activities, to be able to gain their loyalty and make them really contribute the process through member portal. It would be reasonable not only to arrange seminars, but more like think tanks and workshops, which could utilize the expertise of member companies representatives by suitable methods.

Chesbrough´s (2006) definition for business model was presented earlier (Chapter 4.1.1.). According to it a suitable business model for Finpro´s foresight services is outlined.

1) The value proposition: Finpro is strong and unique in offering both foresight and insight to Finnish companies, as was noted in NABC analysis (Appendix 5). Finpro employees´ expertise in many industry fields, knowledge of the current and forthcoming trends and phenomena, methods to collect signals globally, and an ability to understand and analyse all this information in Finnish economy level or in the light of individual company bring outstanding advantages to companies willing to use foresight in their strategic planning. Finpro offers the possibility to prepare wisely for the forthcoming, seize in opportunities early enough, and eliminate the negative effects of future challenges by their comprehensive foresight and profound insight work.

2) Market segment: Finpro has expertise in wide industry field. General information services are usable for all kind of companies and contribute the whole Finnish economy. With foresight the best results are gained in the companies who have established procedures, thus it is not for young start-up companies. Foresight services are meant for all kind of companies who have an interest to utilize current, seemingly vague, but with high potential of gaining cutting edge competitive advantage when used wisely. The service portfolio should be planned in a way that it takes into consideration different resources and needs of different company sizes; for example big companies are more interested in specific and tailored services, and small ones do not afford those if they are not adapted to smaller scale. For example, big companies have resources to analyze collected information by themselves, so plain monitoring service could benefit them. Small companies would need analysis readily done but with small price.

3) Structure of the company´s value chain: All Finpro employees worldwide collect signals to Trendwiki. Foresight team goes through signals and does sense-making and analysing. Outcomes will be offered as general reports to contribute the whole economy, member services through seminars and portals, and services for individual company´s needs through tailored analysis and assignments. As came up in interviews, Finpro could consider buying some information from external sources to have an access to a wider material. Also utilizing crowdsourcing, web communities, and other benefits of social media, as well as hiring employees with different education and backgrounds, was seen reasonable to consider. Opening up the process for companies would gain an essence of open innovation process. Though, it is important to keep sense-making mainly within certain people of foresight team to keep it fluent and credible.

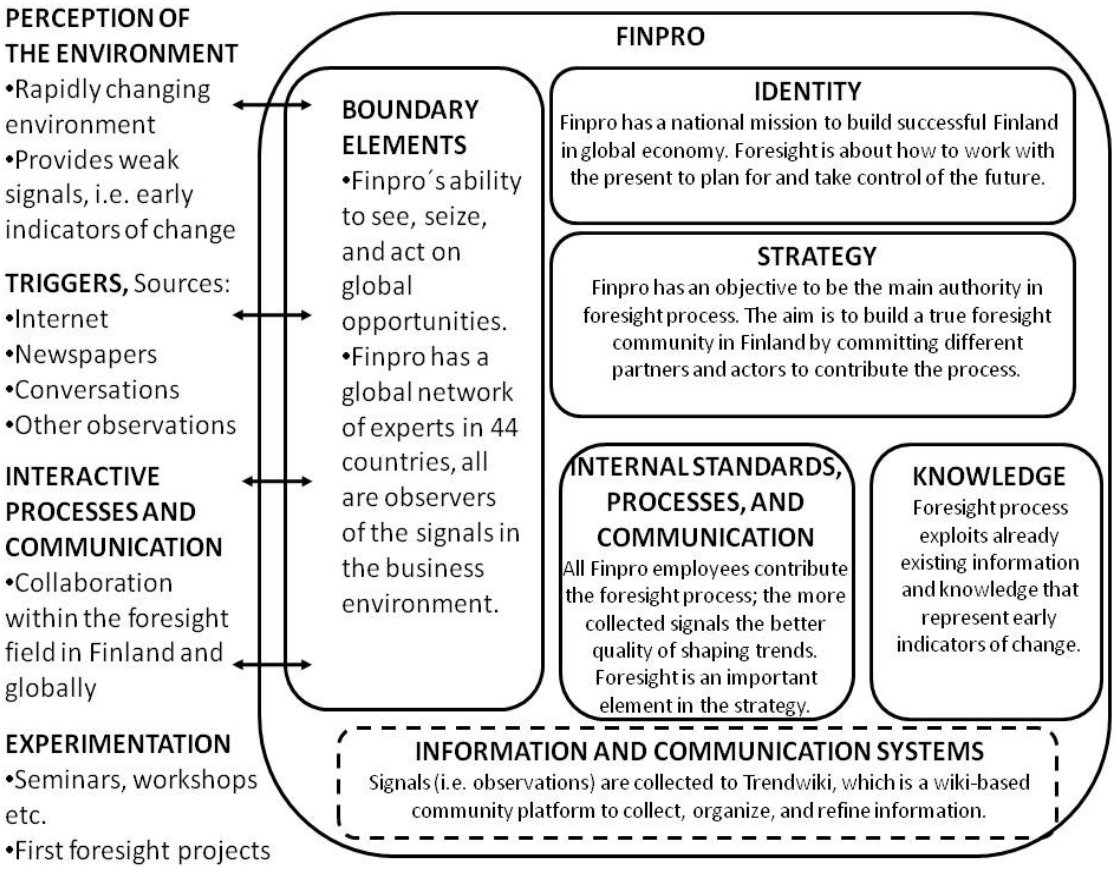
4) Revenue generation mechanisms: As a semi-public organization, Finpro gets it funding partly from the MEE. This has helped in starting foresight activities. Finpro will offer some services and information free due to that, then member services get revenue from the membership fee, but client assignments are the ones which will bring financial profit within the foresight process. As came up in the questionnaire, small companies cannot afford expensive tailored services but have a need for foresight work. Besides general free information services, it would be good to consider different levels for the services with different prices to enable more companies to get involved. Very specific and detailed analysis and services which require more resources can be priced separately case by case.

5) Position within the value network: Finpro could work as a coordinator of different actors and actions of foresight process. It should take an advantage of partnering and collaboration with other related organizations, though keep strings by itself. As stressed in interviews there is no need for an authority who would say what to do in the foresight field, but Finpro would be the main organizer of foresight work. Foresight can offer input in many different phases of companies´ processes.

6) Competitive strategy: Finpro is the only one providing both foresight and insight services. The proposal for foresight strategy is outlined in Chapter 8.1. Differentiation from other actors in the foresight field is described in the next sub-chapter.

7.3. Differentiation from other foresight players

Picture 7.2 shows Finpro described in Maula´s (2005) living composition model (see Picture 2.1) related to foresight activities in Finpro. The picture explains the model in a view of Finpro. But with foresight, Finpro can also be seen working as a boundary element between Finnish companies and the world. As was seen in Picture 2.1, boundary elements support sensing and interactive openness; coordinates the organization with the environment, helps to acquire, create, and improve knowledge, and helps to validate the learning and renewal processes. In Maula´s (2005) model of living composition, the organization structure was divided in memory and senses. Thus, Finpro is offering to be senses for Finnish companies which do not have enough resources to do it properly by themselves. As a memory foresight is for Finpro itself. So, the focus should be in seeing Finpro as a boundary element between the companies and the surrounding world, and regard sensing components in that light.



Picture 7.2. Finpro´s foresight activities in a living composition model.

Interactive processes are methods used to communicate reciprocally with the environment and to influence the co-evolution of each with the other. The collaboration within the foresight field in Finland, and also with other global actors, is important. As was noted in Chapter 5.2, the innovation system in Finland needs to be streamlined and different actors´ roles separated and defined more profoundly. At the moment many actors are doing same kind of processes with a bit different intentions, so duplications should be recognized and organized better. Besides arranging processes to be more efficient and reasonable, that would help in communicating clearer message for Finnish companies to find useful services from suitable service providers just for their needs. It would be reasonable to form an entity of different services combined from different actors but in a way that for clients it would show as one service accessed from one provider instead of many. Even though the interviews brought out that there is no need for one authority who would say what to do in the foresight field, Finpro could be working as a "reception centre" and a contact manager for companies, and be a coordinator of the whole foresight process of different actors and actions.

At the moment triggers for foresight process come from internet, newspapers, conversations, and all kind of observations of Finpro employees. Finpro should consider utilizing more external sources, data services, trend hunters, and other already accessible trend information and weak signal providers to have an access to very wide and comprehensive material. Automating the collecting process would gather more information, but requires more work to filter and analyze those. Of course it is important to make sure that signals are manageable and usable in practise, and that there is not too big amount of useless information messing the whole process up. But the wider the material used in the process, the more reasonable trends can be found. Finpro could evaluate other sources that Solatie & Mäkeläinen (2009) presented (see Picture 2.5). From the interviews there came out a clear need for multidisciplinary view on signals, and especially the diversity of people collecting those to get ever more interesting and truly global foresight information. Even hiring external employees just to bring out ideas and signals could be a wise option for Finpro.

In general Finpro should be courageous in its moves with foresight to gain an image of being innovative, highly abreast of current and forthcoming phenomena, and very future oriented information and service provider. Experimentation helps an organization to create new knowledge and learn about its environment through successes and failures. Finpro has a great potential to do more experimenting with Finnish companies and other foresight actors, only the courage of the participants is restricting it. Experiments with external actors, collaborative projects with unconventional actors, and overall innovative work would help to find out possibilities, challenges, and useful methods to take care of foresight in a whole innovation system of Finland and Finpro´s role in it.

According to interviews, Finland in general has a good upper level foresight system to produce foresight or future reviews, but there is a need to implement that in practice and for companies, and Finpro could be the main actor in that. With foresight it is seen very important to get people truly involved in processes and to do it actively, and Trendwiki is a good tool to do it. Finpro needs to lift its image to correspond its expertise within foresight field; many parties might not regard it as one. Finpro is more known as stable and big international organization, which increases its credibility but might restrict to that. Finpro has a uniquely good global network and multidisciplinary market expertise, which is a differentiating factor compared with others. Finpro should still make a clear separation from those; to choose its focus, market it well, and stay consistent. According to interviews, offering free services for society level was thought not to be the main focus for Finpro´s foresight services. Though, the results of the questionnaire showed that respondents would be very interested in these, taking into account all the services. Of course the idea of general reports etc. were easiest to consider but anyway, producing white papers, reports, and publications might be a very important marketing method for other foresight services, and they can act as triggers to awaken the overall interest. Though, making those in collaboration with other actors and suitable partners would be very reasonable, because focusing most resources towards companies would make Finpro special. Finpro differentiates already with the ability to understand local markets abroad, and it should take a clear role of delivering the message to clients, bringing out triggers, and activating Finnish companies.

As a conclusion of the NABC analysis of the main competitors can be said that Finpro is unique with its offering in foresight. Finpro can both do comprehensive and multidisciplinary foresight work, and offer profound insight for individual companies to support their strategy work. Hiltunen (2008) presented the cube of the future sign, where the signal axe shows the number of signals, the issue axe describes the diffusion of the phenomenon, and the interpretation axe express the receiver's understanding of the future sign's meaning. Finpro mostly uses signals which are considered as weak signals within the cube; signals are more or less visible to be noted, interpretation affects to the collection of the signals even though all noted signals are willed to be collected, but anyways the signals are not yet diffused widely.

7.4. The assessment of the study

It is important to assess the general success of the study, and its success to fulfill its objectives, which were defined in the beginning of the process. As well, it is useful to bring out the need for future research, which rose up during the research process.

7.4.1. Success of the study

When concluding the results, the common possibilities, restrictions and their effect to the nature of the results have to be remembered. Also the research material used in the study affects to the results: how it represents the wanted target group and the basic group, is there bias in the material and how they affect to the results and their interpretation. (Olkkonen 1994, p. 110.) Even though there is quite a lot of material to research, it might have some bias as was discussed in Chapter 6.4. All the respondents have already some connection to Finpro, as the research is about its stakeholders´ opinion. Also the respondents might be working in a similar kind of positions, and at least are mostly working in the industry field of Finland.

Yin (1994, pp. 34 - 37) presents four criteria with which the quality of the case study can be assessed: construct validity, internal validity, external validity, and reliability. Construct validity describes whether the concepts used in the study correspond that what is studied in the empirical level. In other words, it describes the choices that the researcher does in defining the studied concepts and how well do these defined concepts correspond the usage and understanding of them in the empirical part. (ibid. 1994, p. 34.) In this study the main and most controversial concept used is foresight. It is still not an established term to mean generally and exactly the same thing than in this study. Though, it is already widely used in the field of industry related future work, and Finpro has defined it to be most suitable to define its process, so there would not even be any other option for the term. Among the people who act on these questions in their daily work, the term foresight is well-known and clear. In the empirical part of the study this was noticed well, as most of the interviewees knew well the concept of foresight in the same way than in this study. But especially the questionnaire showed that the term foresight was regarded as new and unfamiliar, and its difference from futures studies was not understood well. It might take a while until the term foresight has an established position, but surely it will sooner or later. So the construct validity fulfils well enough.

Internal validity means the assessment of the causal relations in the study, whereby certain conditions are shown to lead to other conditions (ibid. 1994, p. 35). It is challenging to assess the realization of internal validity in this study, because the results base on the subjective opinion of the interviewees and the questionnaire respondents. That is not needed though, because the objective of the study was not to prove any true causal relations. So, it cannot be said that this study fulfils the requirements for the internal validity. External validity assess if the research findings are generalizable beyond the immediate case study (ibid. 1994, p. 35). There was a lot of material from the questionnaire used in this study, so it can be somewhat generalized correspond equivalent wider sample also. It is not necessary, though, because the main objective was to find out the opinion and need of this case company´s stakeholders for the foresight service. Either the research material is not tested with any statistical methods,

as it is not relevant in this case, so it can be said that the requirements for the overall validity do not fulfil.

Reliability demonstrates that the operations of a study can be repeated with same results where the importance of documenting the procedures comes clear (ibid. 1994, p. 36). The questionnaire fulfils the requirement for reliability, as it is documented and explained well, and it would be easy to repeat. The findings from the interviews do not fulfil the requirements, because already when transcribing the material the researcher adds an opinion when sorting and analysing it. So, this study is partly reliable.

The research objectives that were defined in the beginning of the study were fulfilled. The questionnaire got enough answers to be able to conclude the overall interest and need for foresight services. The interviews also brought out many good ideas and an opinion for Finpro´s foresight process. Altogether these offered enough material to evaluate Finpro´s foresight services, suitable business model, and differentiation from other players in the foresight field. The research did not bring revolutionary findings but assurance that Finpro is going to a right direction, and that was regarded very valuable for Finpro. Also many good development ideas and suggestions came out. Developing the foresight work and improving the process is already going on. Based on this study there has already made some changes in the foresight work; for example publishing Finpro´s trends every six months to gain interest, and hiring more personnel with different backgrounds to the team.

To investigate better the differentiation of Finpro from other actors in the foresight field, it should have been committed interviews to the competitors to find out more in detail their foresight processes and intentions. Now the study bases on the information that the competitors provide in their web pages. However, the foresight team in Finpro knows quite well what the others are doing, so that also helped in defining the findings.

Because the requirements for the objectives of this research came from the case company, it was not easy to combine the theoretical part with the results from the empirical study perfectly. The theoretical part mainly forms a background to understand the case company´s intentions and the empirical study of this thesis. This of course affects to the overall outcomes of this thesis. To better the scientific significance of this thesis to previous research, the questionnaire and the interviews could have been planned in a different manner. However, the main objective for this study was to offer practical significance to the case company, and that succeeded because Finpro gained a lot of valuable information regarding the current state of Finnish companies, their interest and need for different foresight services, the evaluation of the foresight process, and assurance and ideas for the differentiation. The overall benefit of this study for Finpro was evaluated to be very good.

8. CONCLUSIONS

Changes in the business environment happen ever faster, and are thus more difficult to control and prepare for. Monitoring the surroundings, observing weak signals, and interpreting their meaning for the overall business are increasingly important. Foresight is about how to work with the present to plan for and prepare wisely for the future. Collecting vast amount of signals from the environment there can be noted congruities, which might hint of the possible future trends. Analyzing those and using the results early enough in individual companies´ strategic planning can offer real competitive advantage and a good basis for innovation work. Finpro has a wide global network of experts who collect signals from the environment continuously. Finpro has launched a foresight service for Finnish companies to better their awareness of current and emergent trends and phenomena, and to utilize the results of their foresight work by offering insight for the strategy work.

The purpose of this study was to find out how Finpro should organize its foresight services in order to satisfy the needs of all its stakeholders. That was investigated by a questionnaire and some interviews. The theoretical part of this thesis focused on monitoring the business environment, using that information to prepare for the forthcoming, defining what foresight is, and how it can be used in support of organizations´ strategic planning. This chapter includes main conclusions of the whole thesis, recommendations for Finpro, and in the end some topics for the future research.

Finpro´s foresight services were seen as interesting, useful, and reasonable among all stakeholder groups. Though the real utilization and concrete benefits of the foresight work were seen challenging to determine and take into practice. Most of the organizations monitor their business environment by themselves, and have been able to utilize this information in the guidance of their action. Practically all use free and open-access sources like internet, but small organizations concentrate mainly on those. The majority of the organizations have noted significant changes in their business environment in recent years, but still have been able to react to these changes quickly enough, even though most of them have not appointed human resources to do monitoring systematically. All organizations were especially interested in their own industry specific trend information, as well as multidisciplinary reviews. General reports of current trends, free information services, and networking were seen interesting among all respondent groups, and especially among small companies. Fee-paying services, like tailored analysis, attract also all but mostly bigger companies. Finpro has a multidisciplinary view and expertise of many industries both in Finland and globally,

though developing collaboration activities with other partners would be reasonable. Finnish companies who focus on certain industry get a real benefit in acquiring overall view of current phenomena in the light of future possibilities. Marketing foresight well is especially important to get Finpro an image of the top quality foresight player, and to get organizations aware of these new services and Finpro´s unique offering.

Foresight was seen as an activity Finpro definitely should do. Doing general reports was seen increasing the interest of foresight, and Finpro was seen to have credibility to do that. The challenge is in preventing the duplication of actions that other parties are already doing or might have better resources to do. Focusing the main efforts on client assignments and member services was seen reasonable, though. Finpro´s foresight process is well-thought, well-structured, and logical. Concentrating on the client focus, gaining a practical level, contributing also external actors, collaborating within foresight field, and thinking of different foresight services for different company sizes would be good. Finpro differentiates by understanding local markets abroad, and with its unique offering of comprehensive foresight work and profound insight work to support individual companies´ strategy work. Finland has a good upper level foresight system to produce foresight or future reviews, but there is a need for implementing that in practice for companies, and Finpro could be the main actor and coordinator of that. Finpro´s foresight work is really enriching the whole innovation economy of Finland.

8.1. Recommendations for Finpro

Finpro has already very well thought and profound schemes for foresight services. They have appointed persons committed to define and develop foresight services, and their enthusiasm has contributed this process greatly. However, some development ideas rose up during this study, though Finpro already has accomplished or is planning to accomplish some of those.

Fleisher & Bensoussan (2007) described effective strategy for a company (see Chapter 4.1.1.). Strategy clearly defines 1) the company´s goals and objectives, 2) the product or service and 3) markets in which it will compete, 4) the business activities on which it will focus, 5) the value it offers to customers, and 6) the approaches it will use to provide superior offerings to competitors. This is used as a basis for developing a proposal for foresight strategy for Finpro.

1) Goals and objectives: Finpro has an objective to be a main authority in signal collection and sense-making. It is important to be the best both in foresight work and providing insight for Finnish companies. The questionnaire showed a need both for detailed industry specific information as well as general consumer and global trend information. The main point was the ability to analyze this information in a wider context and with future perspective, so Finpro is on a right course. Finpro should aim at

gaining a position to be the first option for Finnish companies in offering very current trend related information and services. Finpro could evolve its position to be the main coordinator and organizer of the other actors and actions in the foresight field and thus provide "all service from one place" for the clients. First main goal should be implementing an effective marketing plan to awaken up the interest of Finnish companies, and making clear that Finpro is a number one service provider within this sector. One objective could be to evolve to true facilitator of foresight related innovation procedures, combining many actors and actions within the same platform, and practicing courageous experimentation.

2) Product or service: With foresight Finpro offers general reports and articles, tailored assignments and services, and member services through portal and seminars. As a result of this study, Finpro has decided to publish Finpro´s trends every six months to get an interest of the companies. From these trends later on are refined industry field specific trends to contribute more different industries and companies. Now there are more resources dedicated to producing the contents, not only contributing the process as before. The best futures research techniques should be considered to be utilised in seminars with members. Finpro is collecting all the signals by itself, but it should consider of opening up the collecting process for other actors, and the possibilities to utilize web communities, automated information gathering, and external professionals to collect signals as well. Sense-making should be kept within Finpro, but the benefits of using free-lance foresight workers should be evaluated. The aspect of adding competitive intelligence service to foresight services would be interesting. The service portfolio should be planned to fulfil the needs of both big and small sized companies, for example in a way that same service type could be available with different emphasis, extent, and price. Small companies need more networking and monitoring services, while big companies need services that are specifically tailored for them, not forgetting general information and services for all.

3) Markets: Finpro provides foresight services for Finnish companies in all industry fields. To work properly, companies should have established procedures i.e. they are not young start-up companies. Finpro could evaluate its segmenting to correspond better the essence of foresight; not only by different industries, but more like by different tasks or positions in a company. At least try to gain out-of-the-box thinking with foresight.

4) Business activities: Within foresight process Finpro should and will have a wide service offering to cover the needs of all its stakeholder groups: Finnish economy, individual companies, and Finpro members. There comes an overall benefit for Finnish innovation ecosystem with taking into consideration all of these, and because Finpro can do that in such wide frames, it really should take its advantage. Finpro has to take into account both public and private sector due to its semi-public nature, but that brings it a privilege to see the picture of the whole Finland economy with its companies.

Finpro should deepen up the collaboration with other actors in the MEEC to widen up its benefits, and also utilize global trend hunters and other partners. The idea is to move more towards the open innovation knowledge landscape that Chesbrough (2006) presented (see Picture 4.8).

5) Value for the customers: Finpro´s foresight service provides Finnish companies an access to an analyzed view of very current global and local phenomena and future trends with a potential to gain competitive advantage if succeeded to seize on opportunities proactively. Finpro offers an access to very wide global trend information, which is analyzed in a view of the possibilities for Finnish companies. Finpro should not open the material of the data bank for companies even though it has been asked to, because the essential in offering value for the customers is in its ability to make sense of this wide material. Finpro has very heterogeneous group of companies as its clients and members, and thus it should take into account different needs and resources of them. It would be reasonable to offer foresight services of different levels and prices within one service type to fulfill all its stakeholders´ needs. Especially the benefits for small companies are important to define. Nevertheless, Finpro should consider more the possibilities of contributing from this reference group, because for example providing a part of Trendwiki as an innovation platform for Finnish companies could bring out valuable ideas and collaboration for all, and especially for Finpro. The methods to measure or evaluate the effects of the foresight work should be developed.

6) Approach to competitive advantage: Finpro has to take into consideration also the competition from the international consultancy companies; hence the importance of marketing its services to Finnish companies grows. Finpro needs to lift its image to correspond its expertise of foresight, because many parties might not regard it as one. Concreteness and real advantages have to be raised up with examples and very clear message. Finnish companies have to be convinced of the advantages that especially Finpro can offer being global but purely Finnish, and having both expertise in Finnish industry fields and multidisciplinary global knowledge, combined with the ability to see current and forthcoming phenomena and trends, and interpret their meaning in a wider picture. Finpro really has to market foresight well to make the difference from others and deliver the idea for companies.

“We understand the current global phenomena and bring the world for your needs”.

Afuah (2004) presented three generic strategies that companies use to sustain profitability from innovation: block, run, or team-up strategy (see Chapter 4.1.1). Finpro already has and should develop more its foresight strategy towards an effective combination of all these three aspects. Block strategy is more or less easy to contain because for competitors it is quite difficult to imitate Finpro´s foresight process or its global resources with multidisciplinary expertise. Finpro´s foresight services are still

easy to substitute in the view of a client, because it has not yet reached an established position in Finnish foresight field, and especially because it is not yet well known as a foresight player for the big audience. So, effective marketing efforts are needed. Continuous innovation that enables run strategy is well in action already; Finpro has its sensors open and active. It still should not settle in its excellence but question its processes in a continuous manner, and also think how to utilize the results of foresight work to renew itself, and evaluate the concrete impacts and value of foresight.

Team-up strategy is what Finpro should seriously take into consideration to form the best possible partnerships and take an advantage of collaboration with other parties. Interviews brought out that it was seen reasonable for Finpro to open up the foresight process a bit and not confident only on own employees´ observations, because they all are finproners, and have more or less same kind of education, work tasks, and view of the world. As well hiring people with very different backgrounds to foresight team would bring diversity to the process. It would be good to be a bit radical, use crowdsourcing and external trend scouts etc. Also developing automation to collecting signals, and proposing more topics in Trendwiki would ease the collection process. It would be good to develop a system to collect ideas and start real interaction with clients and members; as well give other companies a possibility to contribute this. Committing members to contribute and develop the whole thing would be of value, so providing some triggers and real benefits for them is important.

So, developing the process in a way that not everything would be done only by Finpro would be reasonable, starting by real partnering, collaboration and using more external actors. It is important to offer both general level information services, and company specific tailored services, and everything in between by clients´ needs. Thinking of different client segmenting than with different industries at the moment would be worth of thinking with foresight services, because task and position in a company may determine more the need for foresight. Trendwiki could be used as an open innovation platform to raise the common interest. It would work by separating some parts to be open to everybody, and collecting signals and ideas like that. If that would work and gain real community of users and ideas, it would be of high value for Finpro and its clients. At least it would make sense to open up Trendwiki, partly or all, for partners, even though keeping the analysis part for every actor by themselves.

8.2. Future research topics

Due to limited resources and the restrictions of the empirical material used in the research, the results of the questionnaire could be investigated more in detail and in wider extent. The needs and interest of different stakeholder groups could be analyzed more, for example by cross-tabling the material, to find out the linkages of the background variables in purpose of better planning different services for different

market segments. It would be worth investigating how the foresight services could be refined further on, for example by deeper interviews or differently structured questionnaire. Also to do real benchmarking within different foresight service providers could be of value. To deepen up different ways foresight information can be utilized in Finpro´s client companies and evaluating what really is useful for them could be a basis for future planning processes.

Evaluating and comparing different traditional futures research methods and also completely new and fresh ones to plan which would suit best to foresight work would be reasonable. In this case, the practical approach is more important than the academic requirements. The possibilities that different social media tools provide could also be investigated, as well as Finpro´s and its stakeholders´ readiness to utilize those. Now the main focus was on using foresight in the strategic planning, but scientifically thought it would be very interesting to investigate the theme by the light of different information needs of different types of organizations. One very interesting but challenging topic for the research would also be measuring or evaluating the effect of the foresight work to Finnish company, society, Finpro stakeholders, and Finpro itself.

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APPENDICES (5 pieces)

1: Questionnaire form

2: Draft of the interview

3: Foresight field

4: Questionnaire results

5: NABC analysis

Appendix 1 : Questionnaire form

Dear recipient,

Finnish companies´ need for multidisciplinary and current foresight information is ever increasing. Finpro´s global network covering more than 40 countries, deep expertise in different industries, and the ability to analyze the changes happening in the business environment, gives us the ability to provide you this kind of foresight information. With Finpro´s foresight process we continuously monitor events in the world and bring out that what is assessed to have the real impact. To be able to bring out this information in a way that contributes best your company, it is essentially important for us to hear your thoughts of foresight taking into consideration your company´s viewpoint.

We ask you to answer to a few questions. The questionnaire is a part of the Master of Science thesis research made for Tampere University of Technology. All of the answers will be treated confidentially. The answering will take about five (5) minutes.

In Finpro´s foresight service related questions the person in charge is Markku Vantunen +358403 433 407 *(markku.vantunen@finpro.fi).*

1) What information sources are used in an organization to monitor business environment systematically.

- Internet ( )
- Newspapers and magazines ( )
- Publications and reports ( )
- Industry specific analysis tailored for our company ( )
- Market information and media tracking services ( )
- Consultants ( )
- Other? _____
- Nothing ( )

Has your organization been able to exploit this information in the guidance of its actions? Yes ( ) No ( )

2) In your organization, have you appointed a person in charge to monitoring business environment systematically? Yes ( ) No ( )

3) In your business environment in the last two (2) years, has there been…

- Very significant changes ( )
- Significant changes ( )
- Somewhat significant changes ( )
- No changes ( )

Has your company been able to react to these changes quick enough?

Yes ( ) No ( )

4) Scenarios are different kind of outlining descriptions of future´s business environment and events. Would you be interested in scenario working?

Yes ( ) No ( )

Other things to say about scenarios? _____

5) Trends are development lines or phenomena for which you could prepare by monitoring and analyzing related early-indicating signals. What kind of trend-related information would you need to support your decision-making?

- Purely technology related ( )
- Societal changes related ( )
- Consumer attitudes and values related ( )
- Legislation and decree related ( )
- Economy related ( )
- Culture related ( )
- Environmental issues related ( )
- Something else, what _____
- Not interested ( )

6) Concerning your organization, how interesting are...
(4=very interesting 3= interesting 2= somewhat interesting 1= not interesting)

- General reports of the trends that are noticed significant (white papers):
  (4) (3) (2) (1)
- Global industry specific news letters of the latest trends in the field):
  (4) (3) (2) (1)
- Industry specific country reports focused on foresight information and trends):
  (4) (3) (2) (1)
- The possibility to explore industry specific trend material in internet portal):
  (4) (3) (2) (1)

What other kind of information services would be interesting? _____

7) Finpro will widen its service offering by services based on foresight information. Which kind of trend related services your organization would regard interesting?
(4=very interesting 3= interesting 2= somewhat interesting 1= not interesting)

- Fee-paying seminars of specific themes utilizing trend related information:
  (4) (3) (2) (1)
- Trend related analysis specifically tailored to your organization:
  (4) (3) (2) (1)
- Supporting your organization´s strategic planning by utilizing analyzed trend information:
  (4) (3) (2) (1)

What other information services based on foresight information would be interesting??
_____

8) What other actors in the foresight field do you know besides Finpro?
_____

9) Would you be interested in co-operation related to foresight services?
Yes ( ) No ( )

10) Your industry field

- Energy and Environment ( )
- Life Sciences ( )
- Forest ( )
- Software and Digital Media ( )
- Services ( )
- Construction and Logistics ( )
- Machinery ( )
- Other _____

11) Your organization size (persons)

- less than 10 ( )
- 10 - 49 ( )
- 50 - 249 ( )
- 250 or more ( )

Appendix 2: Draft of the interview

1) What kind of image do you have of the foresight service that Finpro is offering?

Presenting

- Process picture (see Picture 5.4) and outputs (see Picture 5.5)
- Services offered to different stakeholders (See Picture 5.6)

2) Do you think that this is in line with that what Finpro should do?

- In your opinion, how does this match with Finpro´s other activities?
- What kind of prerequisites Finpro has for foresight activity?

3) How Finpro positions in the foresight field of Finland?

- Which other organizations do foresight?
- How does Finpro differentiate from those?
- What could Finpro do to differentiate even more?

4) In your opinion, how should Finpro´s foresight process be developed so that it would be as useful as possible for Finnish companies?

- Applicability in practice is an important factor here.

5) What kind of collaboration possibilities you see with Finpro and your organization, considering foresight activities?

Appendix 3: Foresight field

	Signal source	**Output type**	**Process** (FS=foresight, IS=insight)	**Client**	**Core activities**	**Difference from Finpro**
FINPRO (www.finpro.fi)	Global, fresh observations, signals collected by employees worldwide	White papers, client assignments (strategy), member services (web portal, seminars). ALL INDUSTRIES!	Collected signals to Trendwiki, signals are combined, analysts do sense-making (FS & IS)	Finnish society, Finpro companies & members	Consulting in internationalization, foresight will be one core action in the near future	
15/30 Research (www.1530.fi)	Collaborative insight space community (CIS), weak signal collection & trends, consumer research (questionnaires)	Trend reports, seminars, tailored research, information, tools and methods to collect signals, refine signals and trends to concepts and commercial innovations (CIS), networking, help in creating foresight culture in company	Collection methods unknown, but CIS offers connection to wisdom of crowds: 10.000 European consumers, trend observers, and experts. Information collected also by questionnaire research. Outcomes implemented individually by every case. (FS & IS)	Companies, organizations, overall.	Consulting & research; market research and reports (focused on the young), consumer trends, foresight.	Close to Finpro services, but focuses on the young and consumer trends, and does not have own resources to observe globally -> buys information services (besides questionnaires) How the utilization of wisdom of crowds is realized in practice?
Capful Oy (www.capful.fi)	Changes in an environment, business opportunities. Scenarios -> vision -> strategy.	Client assignments (solutions for strategic renewal: change plans and roadmaps).	Scenario-based projects. Identifying and understanding changes in an uncertain environment, capturing business opportunities, creating strategy alternatives, and developing actionable strategies. (IS)	Both private and public sector organizations. EVA, also some work for Finpro.	Management consulting specializing in scenario planning and development of scenario-based strategies	Focuses only on insight and strategy work, offers only tailored analysis (no common reports etc).

	Signal source	**Output type**	**Process** (FS=foresight, IS=insight)	**Client**	**Core activities**	**Difference from Finpro**
CoFi, Corporate Foresight Group (www.it.abo.fi/cofi/)	Political, economic, social, technological, and ecological (i.e. PESTE) factors to form holistic views of the future. Collaboration with TEKES and other organizations. 4 people working on projects. No systematic signal collection, signals/ information from interviews and conferences.	Research, publications and reports, projects, scenarios.	Applied research, developing frameworks, and resolving methodological issues as well as education and consulting in the core fields. Mainly **academic** in nature. Forming scenarios and considering their effects on companies and industries, regional and global development. (FS&IS)	Decision makers in companies and in other organisations.	Business oriented group of researchers in the field of future studies and visionary leadership. The core research areas are: Scenario methodology and planning, visionary concept development and innovation process, future oriented core competences, visionary leadership and corporate strategy.	Academic nature, futures research methods and view in processing information. Focuses on futures research and visionary leadership, depends highly on one person´s expertise. Only occasional company consultancy.
Devoi Oy (www.devoi.fi)	Signals collected in meetings arranged for company managers to exchange ideas. Also collected by KEV, ideas from participants, conversations, student community.	Publications, think tanks	**Interactive meetings** among managers, one topic in one meeting (4 hrs) (IS)	Company managers	Consulting, research, enables networking (arenas)	Focuses on insight, signal collecting basically from people´s minds (but also using KEV signals). Think tank method.

	Signal source	**Output type**	**Process** (FS=foresight, IS=insight)	**Client**	**Core activities**	**Difference from Finpro**
Finland Futures Research Centre (www.tse.fi/EN/units/specialunits/ffrc/Pages/default.aspx)	Futures knowledge, academic research, specialized areas; for example regional development and foresight.	Research, projects, expert lectures, training programs, future study courses, publications, annual conference, study programs, seminars. Strategic vision and scenario projects. Formats to back up its clients´ futures processes; tools to forecast future developments and control change processes. Futures Focus education and development services offer tools to control change and observe weak signals.	Refines visionary knowledge regarding alternative futures and the challenges and possibilities included in them. Interactive forums, analyzing weak signals and speculating trends. (FS&IS)	A network of 16 Finnish universities. Very much **academic** approach. Organizational decision makers and regional actors.	The Centre is the only academic futures research organization in Finland. Fields: foresight, environmental issues, innovations, creativity, culture and the knowledge society. Works as partner in organizations´ development projects.	Academic approach. Focuses on research and general level issues, but also offers services and insight for organizations. 40 experts, wide networks.
Fountain Park (www.fountainpark.com/)	Hidden knowledge. Advertises Sensemaker tool for environmental changes, weak signals and trends. Focus is on company's own clients, information collecting by interviews and questionnaires.	Researches, White Papers, web based tools to develop organization´s actions.	Providing **web-based methods** for proactive leadership, to find out what the staff, customers and stakeholders think. (FS)	Companies, associations and public organizations. Both Finnish and global clients.	Proactive leadership expert.	Offers general web tools and methods to collect information, can be tailored for each company but does not offer insight or strategy work.

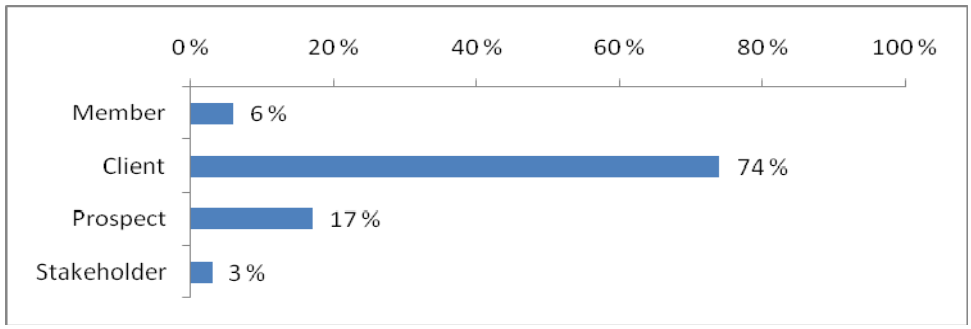
	Signal source	**Output type**	**Process** (FS=foresight, IS=insight)	**Client**	**Core activities**	**Difference from Finpro**
Futurecode Oy (www.futurecode.fi/)	Collection of weak signals. Futurecode Global Network, multidisciplinary experts, idea bank. Three persons working on projects.	Weak signal reports twice a year. Offers new ideas for businesses. Creativity and innovation for strategy work.	Futurecode Detecting System and Global Sensor Team are a solution to recognizing weak signals and to developing them into competitive advantage. Continuous weak signal monitoring and reporting them twice a year. (FS&IS)	Companies, organizations.	Futurecode is specialized in developing completely new service and product concepts with creative problem solving, out-of-the-box thinking and mind explosion techniques.	Small personnel. (How does Futurecode Global Network work?)
Futures Studies Mannermaa Oy (http://mannermaa.onet.tehonetti.fi/)	Future research, partners, the expertise of the consultant.	Future projects, articles. Future research, scenario and strategy projects, future studios, toolbox. Bases on the work of one person and utilization of networks.	Utilizes networks, done with partners, tailored by case (FS&IS).	Companies, organizations -> persons	Futures consulting.	One person working, academic background, highly dependent on external networks.
GIA (http://www.globalintelligence.com/)	GIA analysts. Intelligence Desk tool - customized market monitoring solution.	Assessments, white papers, work shops. Future Watch - Identifying strategic themes and impact on options. Customized monitoring services: personalized e-mail briefings and analytical reports.	More on the IS; very close to traditional consultancy. Trend analysis, scenario analysis, war gaming and PESTEL analysis.	Companies.	Insights & analysis. Helping to make right decisions with a comprehensive one-stop solution for all strategic market intelligence and advisory needs.	Focus on insight and work with a client, and market reports, foresight reviews made by order.

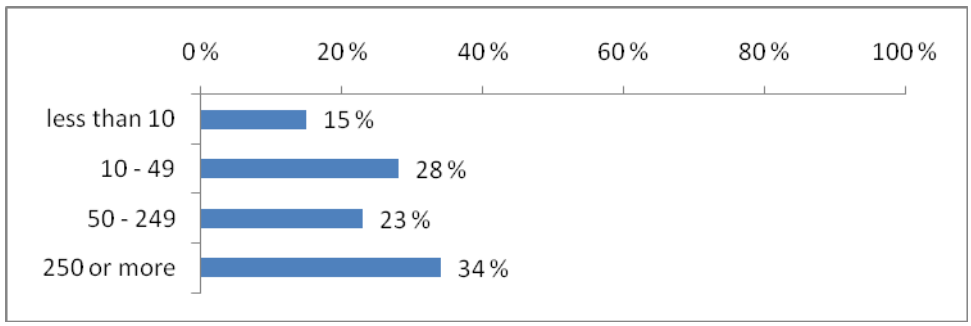
	Signal source	**Output type**	**Process** (FS=foresight, IS=insight)	**Client**	**Core activities**	**Difference from Finpro**
KohlConsult Oy (http://www.kohlconsult.com/)	Only one consultant with academic background.	Methods for strategy work, empathize walk.	Doing together with a client. (IS)	Companies.	Management consulting, research and development. Themes: foresight, environmental change, sustainable development, assessment of impacts.	One person with academic background working in a company. Only a couple of themes, not global.
PSD Consulting Oy (http://www.psd.fi/)	Weak signals. Offers two-day workshops for getting started with the collection of weak signals. Also longer 2-4 month projects including collection and analysis of signals and trends.	Competitor analyses, source analyses and organization evaluation. ERP and BI solutions.	Integrating customer experience and foresight management areas together, innovation and strategic and operative work with client. (IS)	Companies and public sector.	Project management and consulting services. Delivers information products and systemized information processes to support customer´s business.	BI solutions, focus on insight.
Sitra (www.sitra.fi) KEV: (www.foresight.fi)	Leading group of KEV goes through signals and picks ones to start process with expert network.	Reports and analysis from KEV process published in web.	Expert workshops. (FS)	Public sector, everyone, possibly strategy work for companies, start-up for internal programs	Independent public fund, programs	Different viewpoint, focus on foresight. Partner for Finpro.

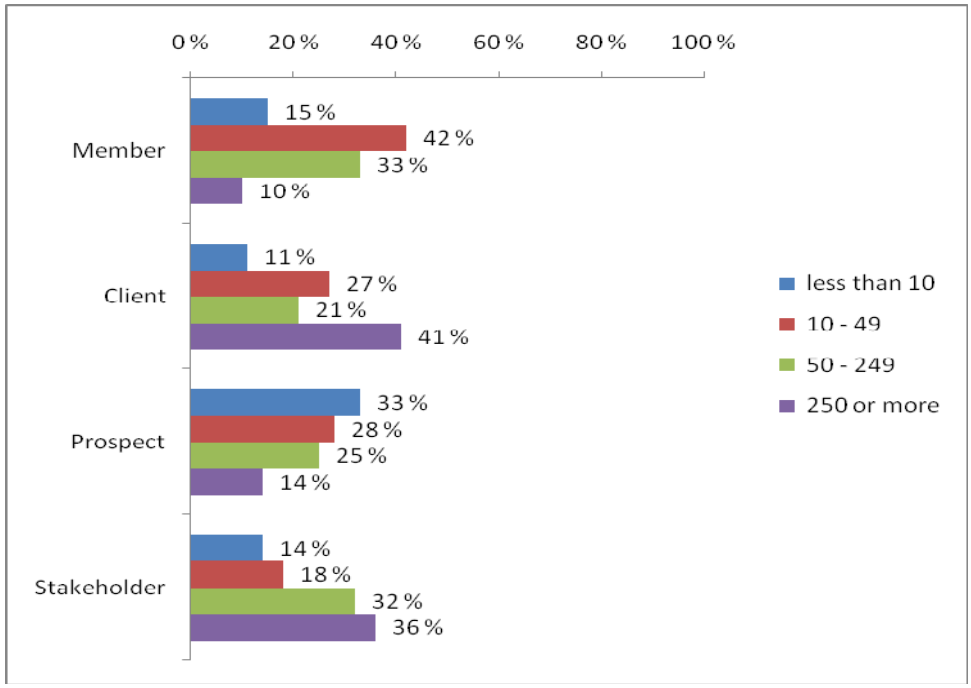
	Signal source	Output type	Process (FS=foresight, IS=insight)	Client	Core activities	Difference from Finpro
Tekes (www.tekes.fi)	Research publications, strategy conversations discussed with clients. FinNodes globally.	Used in support of own strategic planning, general reports.	Own strategy rounds every 3 years, short signal sessions with clients. (FS&IS)	Public sector, private companies.	Funding, research.	Different view on signals to work with. Facilitator, providing triggers. Partner for Finpro. Focus on foresight, serves more Centres of Expertise (OSKE) and thus groups of companies than individual companies.
Viestinhallinta Oy (http://www.viestinhallinta.fi/)	Target phenomena; following megatrends, not so much signals.	Megatrend analysis, cluster and company analysis.	Forecasting portal. Approach is tracing foresight; mainly analysing the meaning of megatrends for clients. Foresight services tailored by each case. (IS)	Companies, authorities, associations, private persons.	Main actions are foresight (working life and competence needs future research) and communications education (spoken and written communication). Also education for foresight methods.	One person working. Focusing on the process and megatrends.

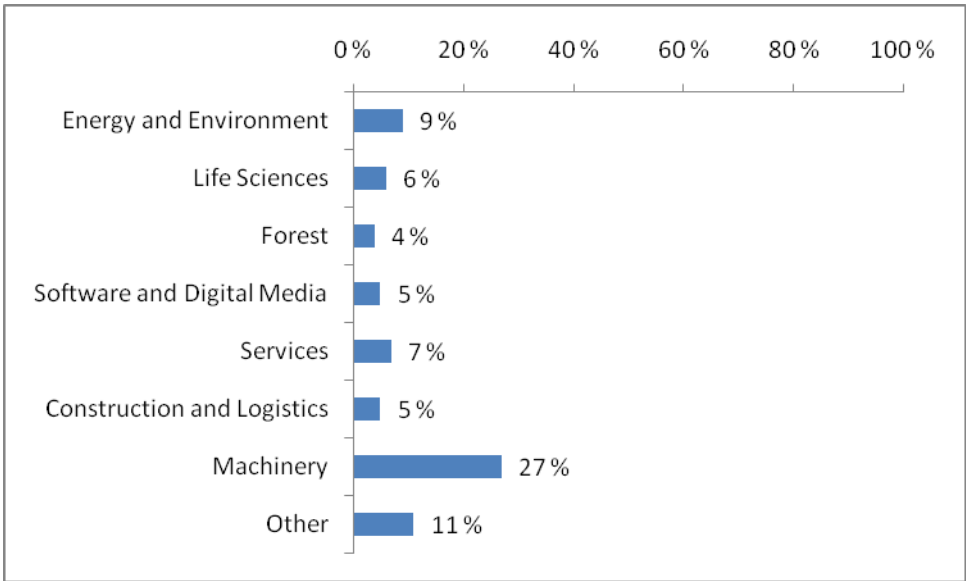
Appendix 4: Results of the questionnaire

The dispersion of the respondents:

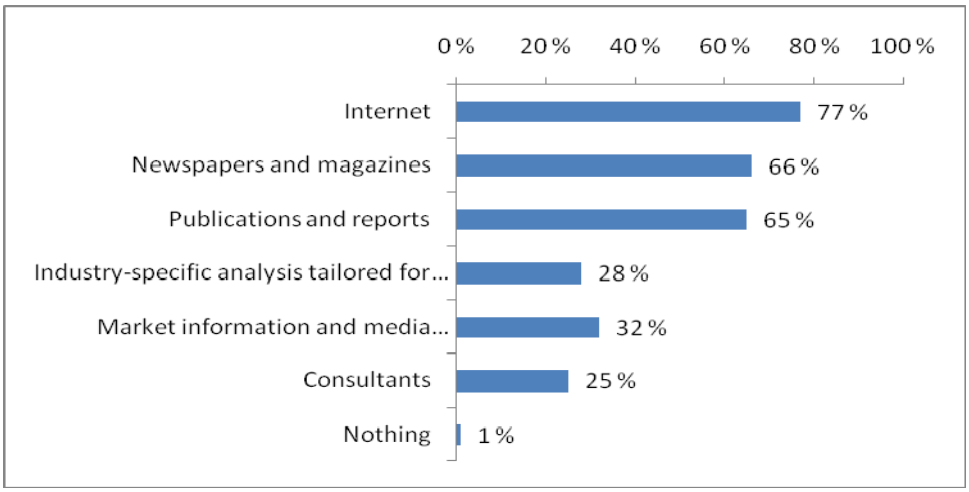


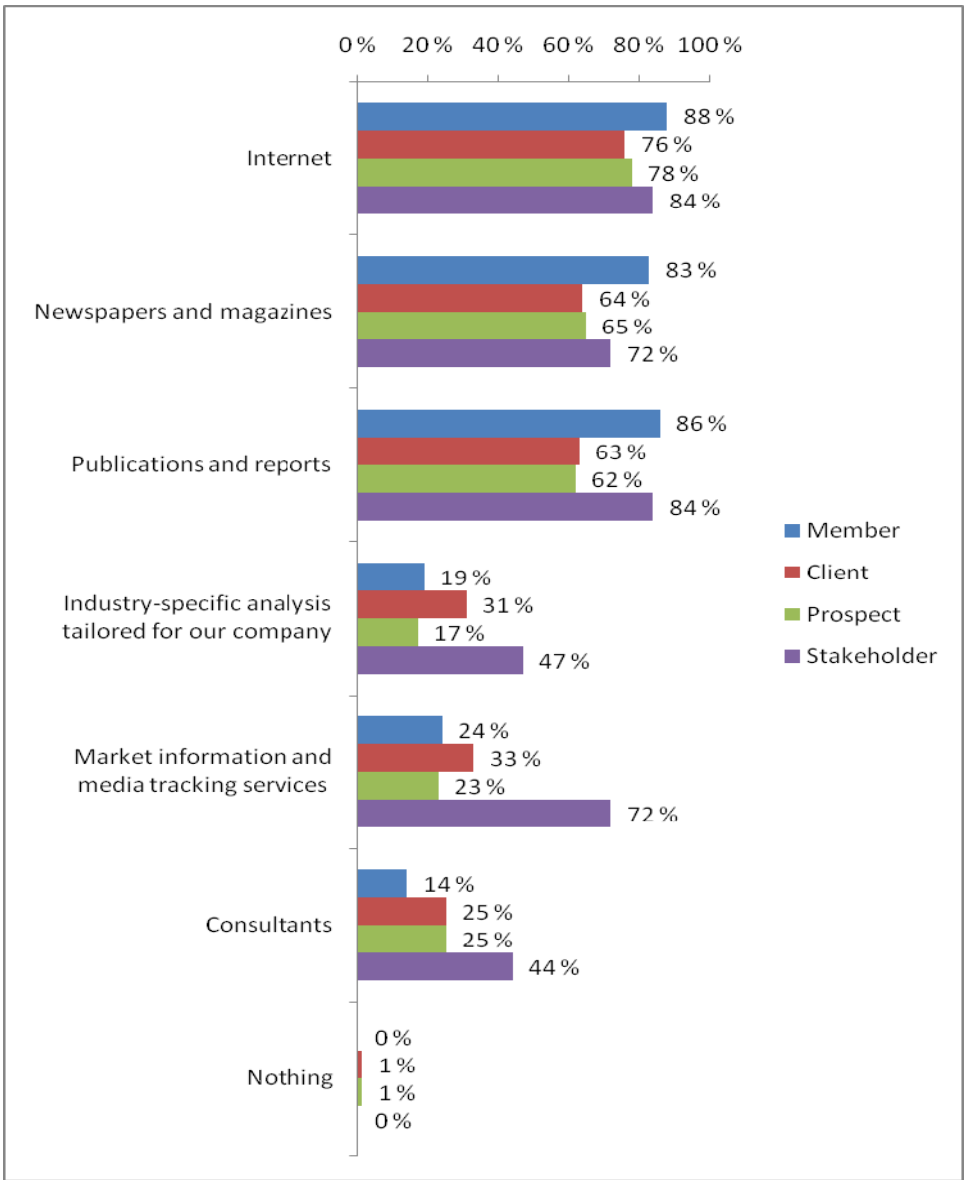




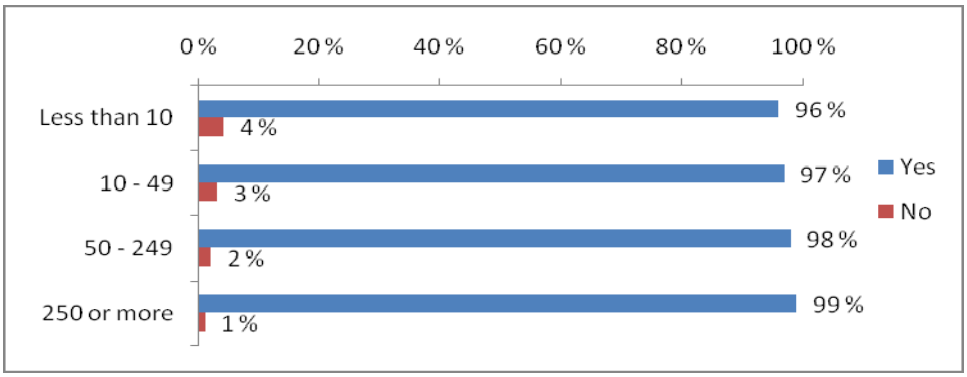


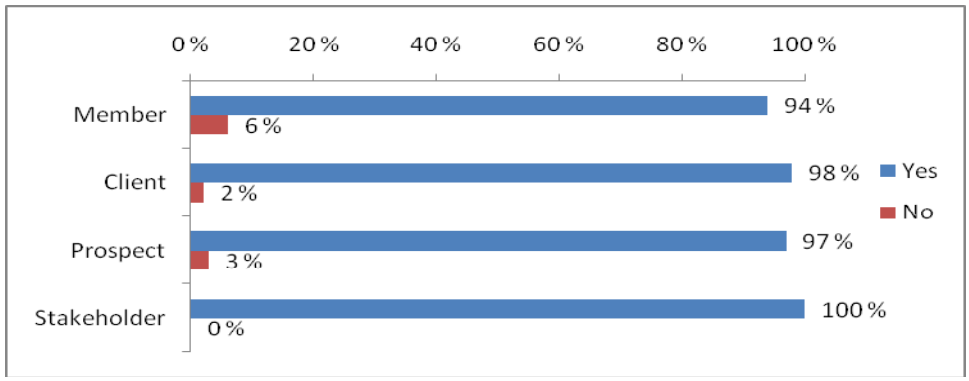
Information sources used in an organization to monitor business environment systematically.



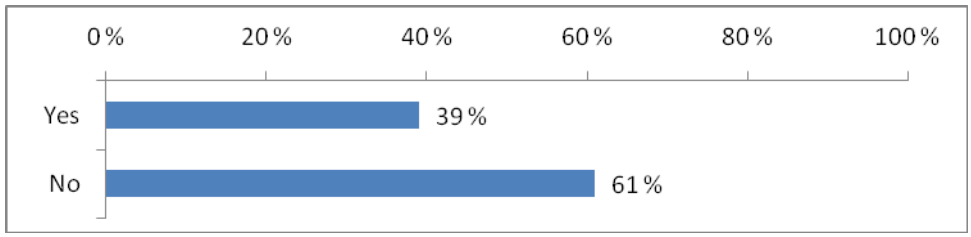


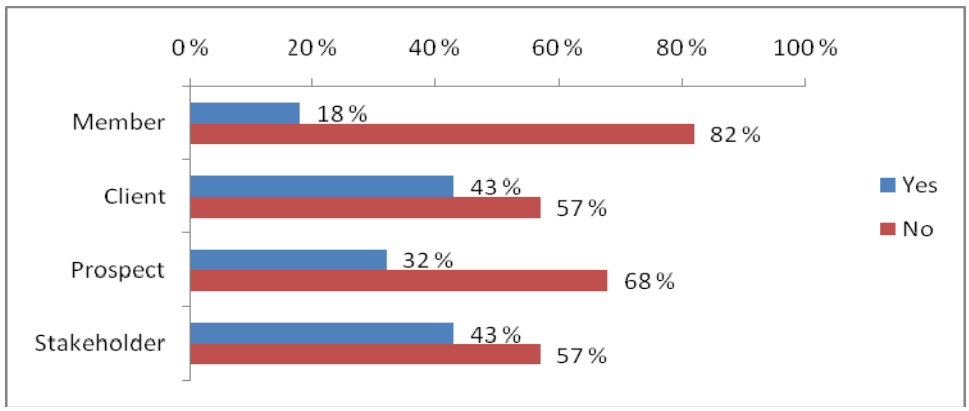
Has your organization been able to exploit this information in the guidance of its actions?



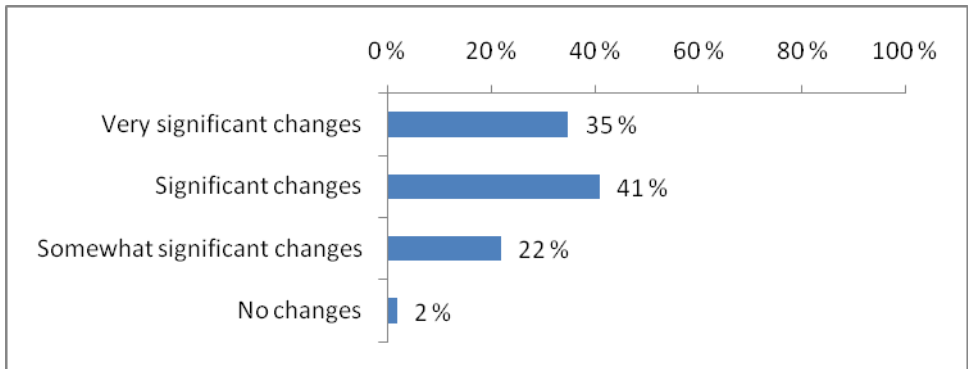


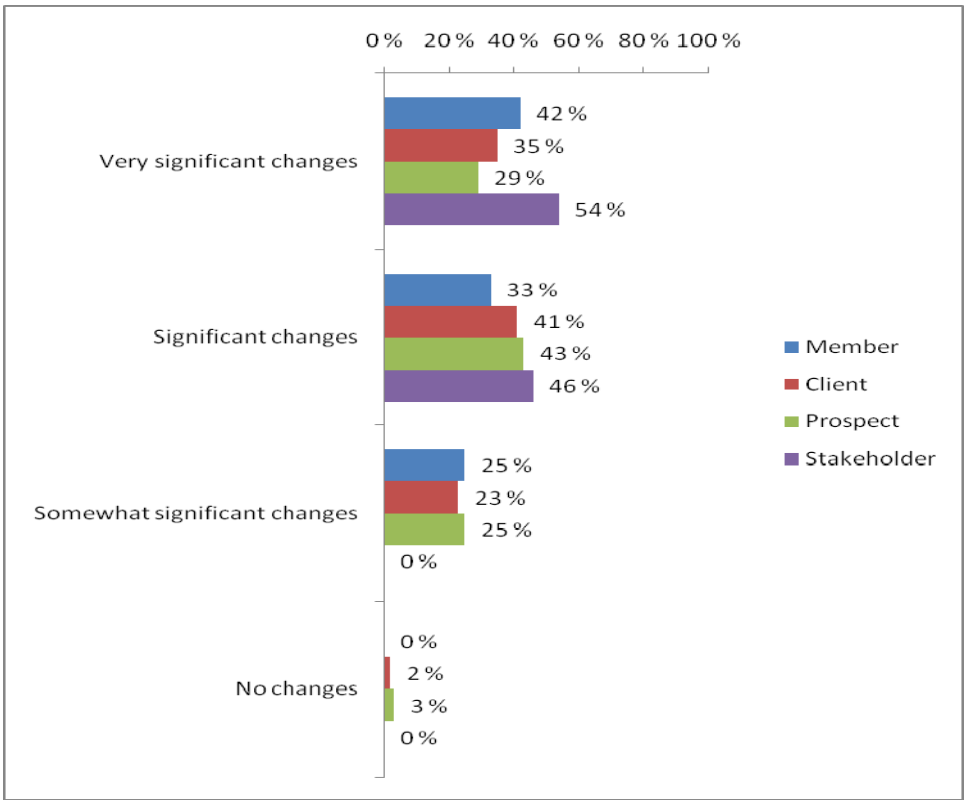
In your organization, have you appointed a person in charge to monitoring business environment systematically?



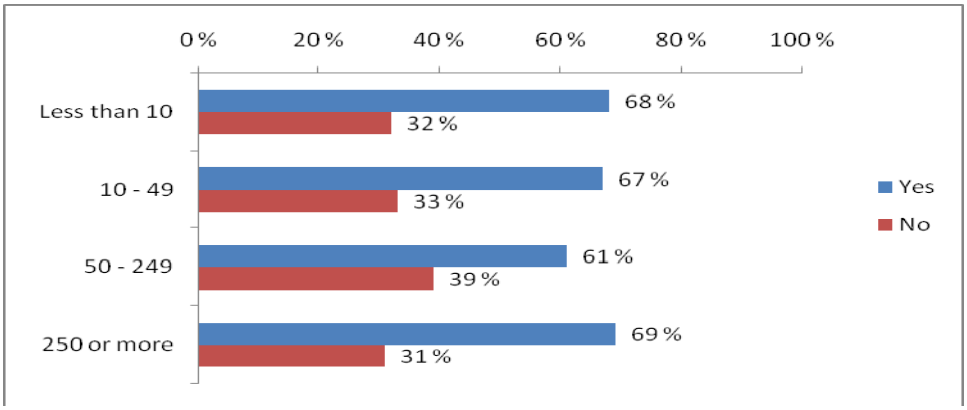


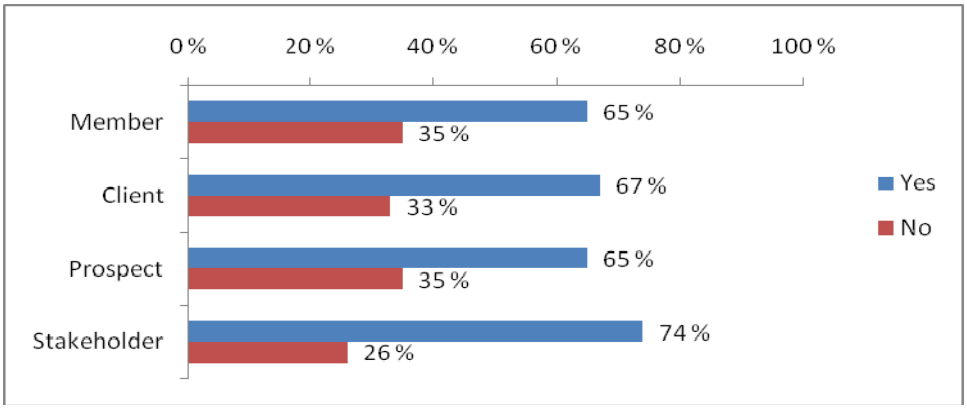
In your business environment in the last two (2) years, has there been...



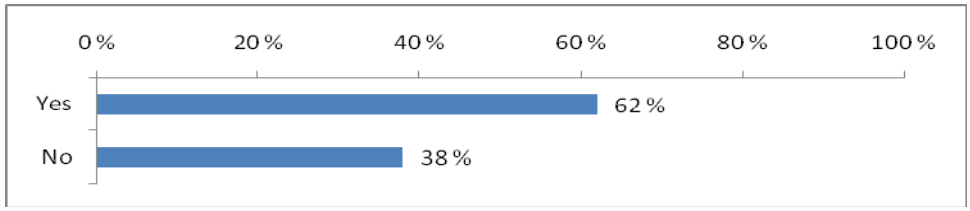


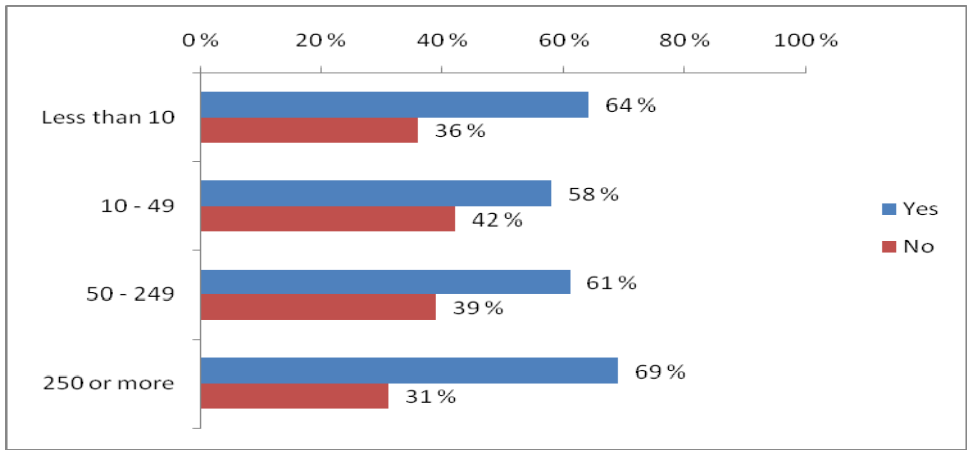
Has your company been able to react to these changes quick enough?



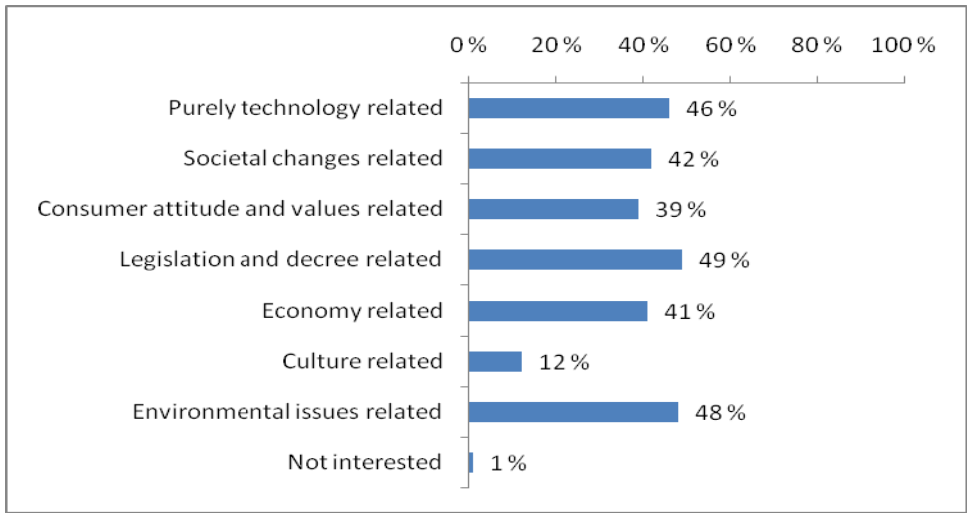


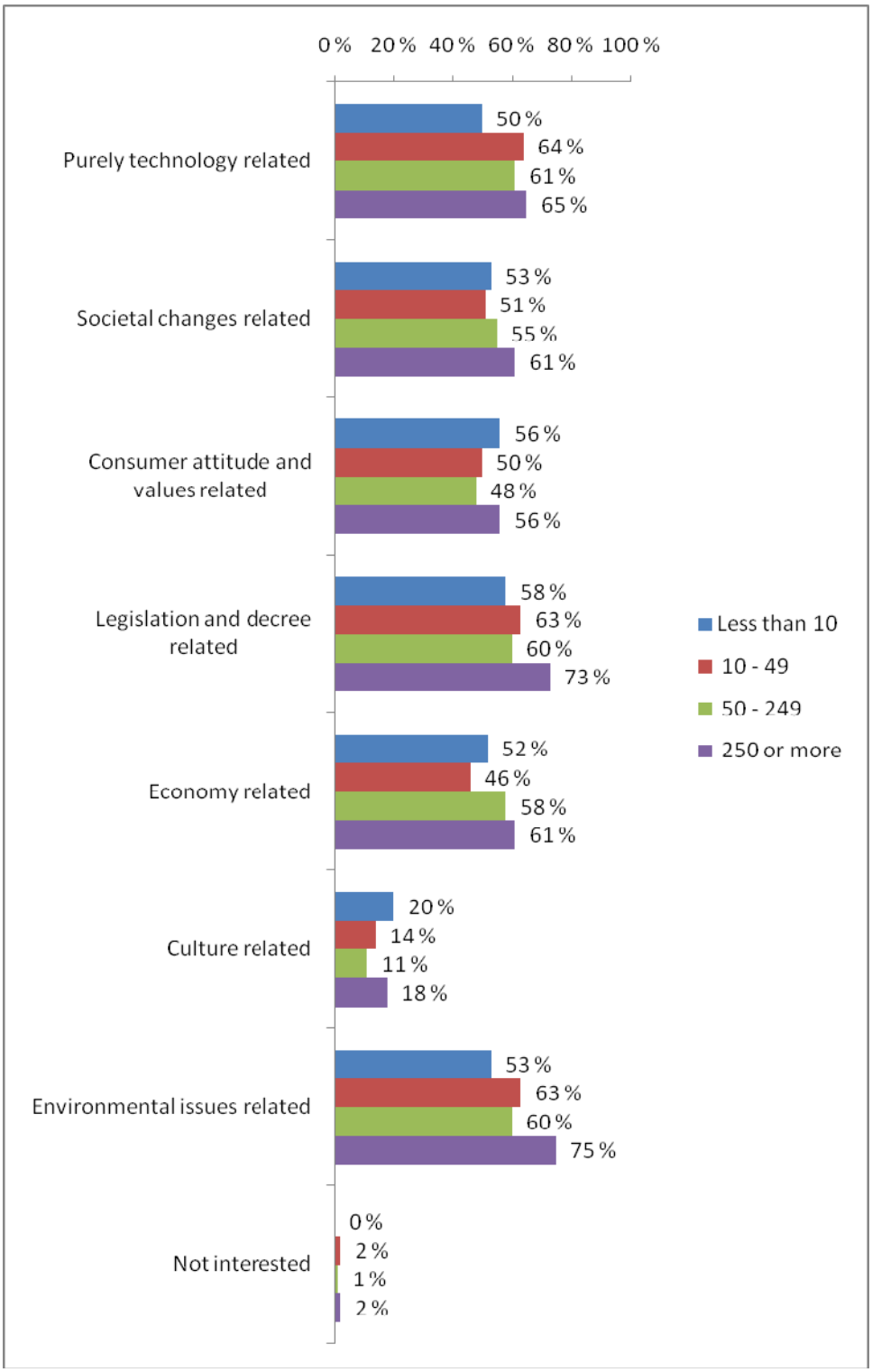
Scenarios are different kind of outlining descriptions of future´s business environment and events. Would you be interested in scenario working?





Trends are development lines or phenomena for which you could prepare by monitoring and analyzing related early-indicating signals. What kind of trend-related information would you need to support your decision-making?




0 %
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Purely technology related
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Societal changes related
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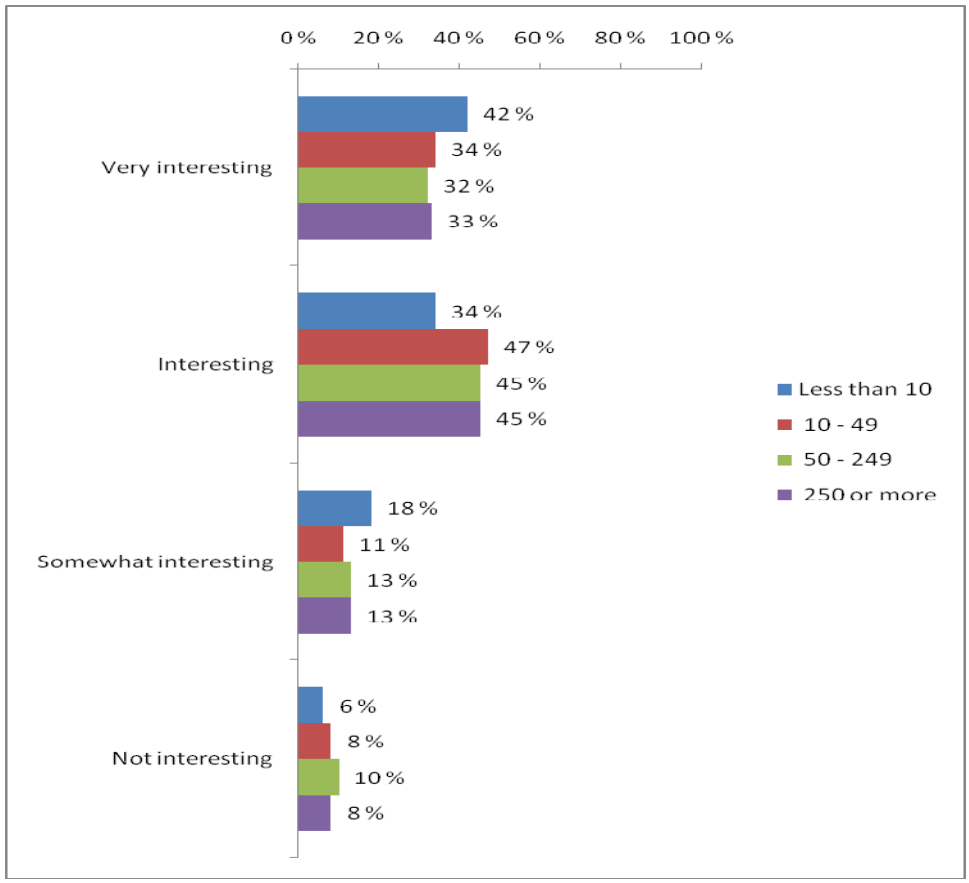
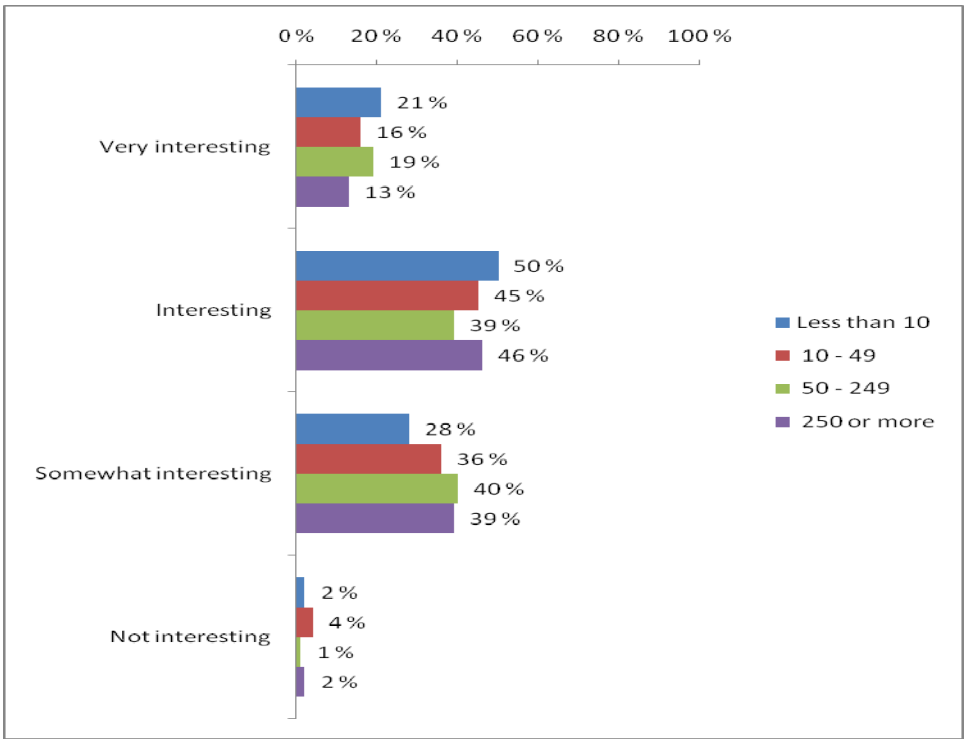
Consumer attitude and values related
56 %
50 %
48 %
56 %
Legislation and decree related
58 %
63 %
60 %
73 %
Economy related
52 %
46 %
58 %
61 %
Culture related
20 %
14 %
11 %
18 %
Environmental issues related
53 %
63 %
60 %
75 %
Not interested
0 %
2 %
1 %
2 %
Less than 10
10 - 49
50 - 249
250 or more

Concerning your organization, how interesting are...

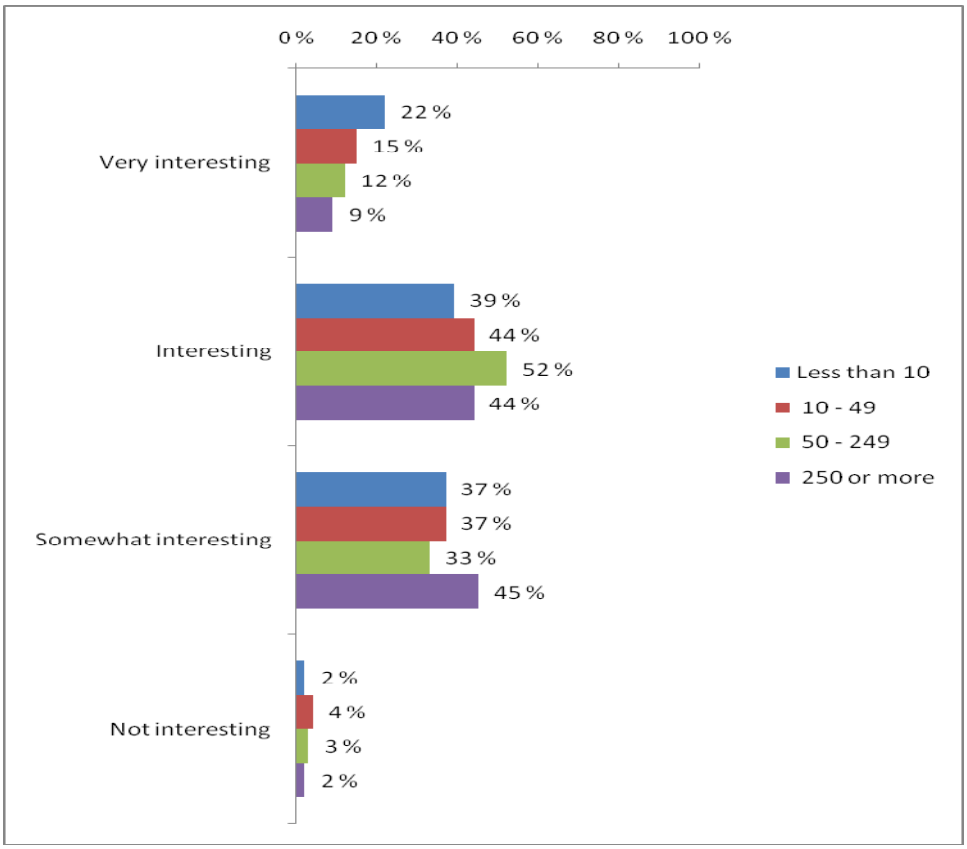
General reports of the trends that are noticed significant (white papers):



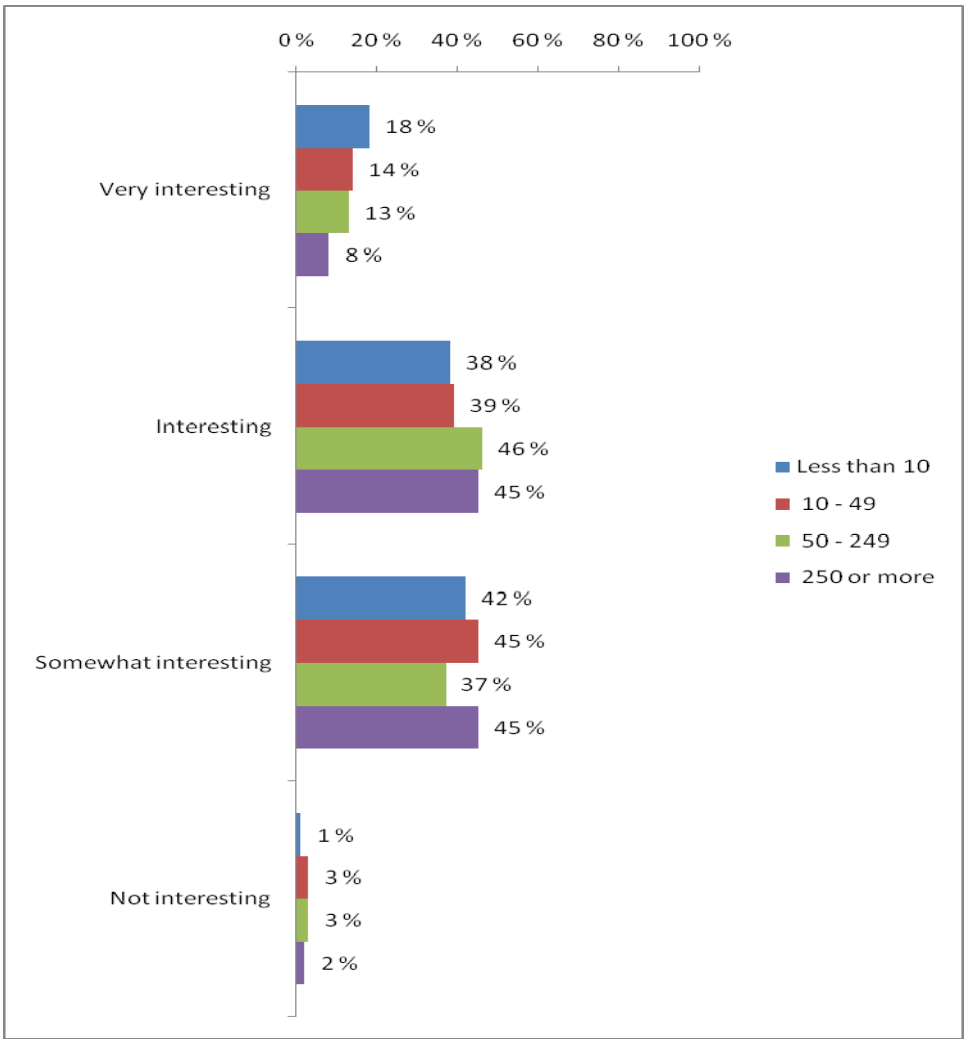
Global industry specific news letters of the latest trends in the field:



Industry specific country reports focused on foresight information and trends:

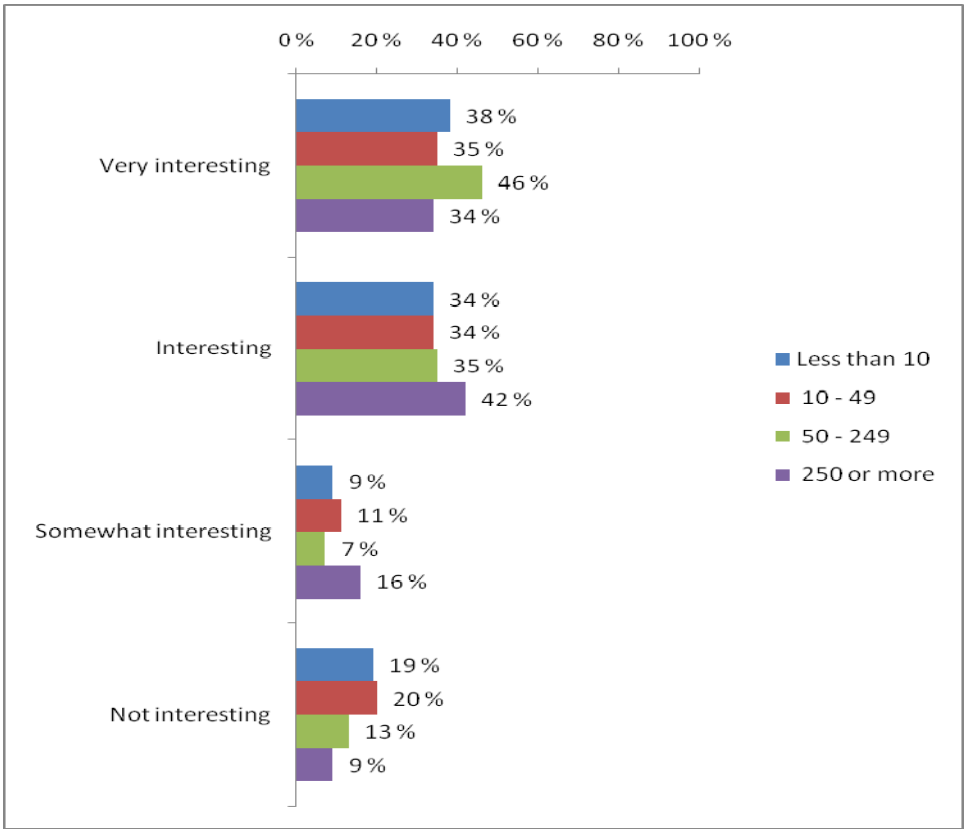


The possibility to explore industry specific trend material in internet portal:

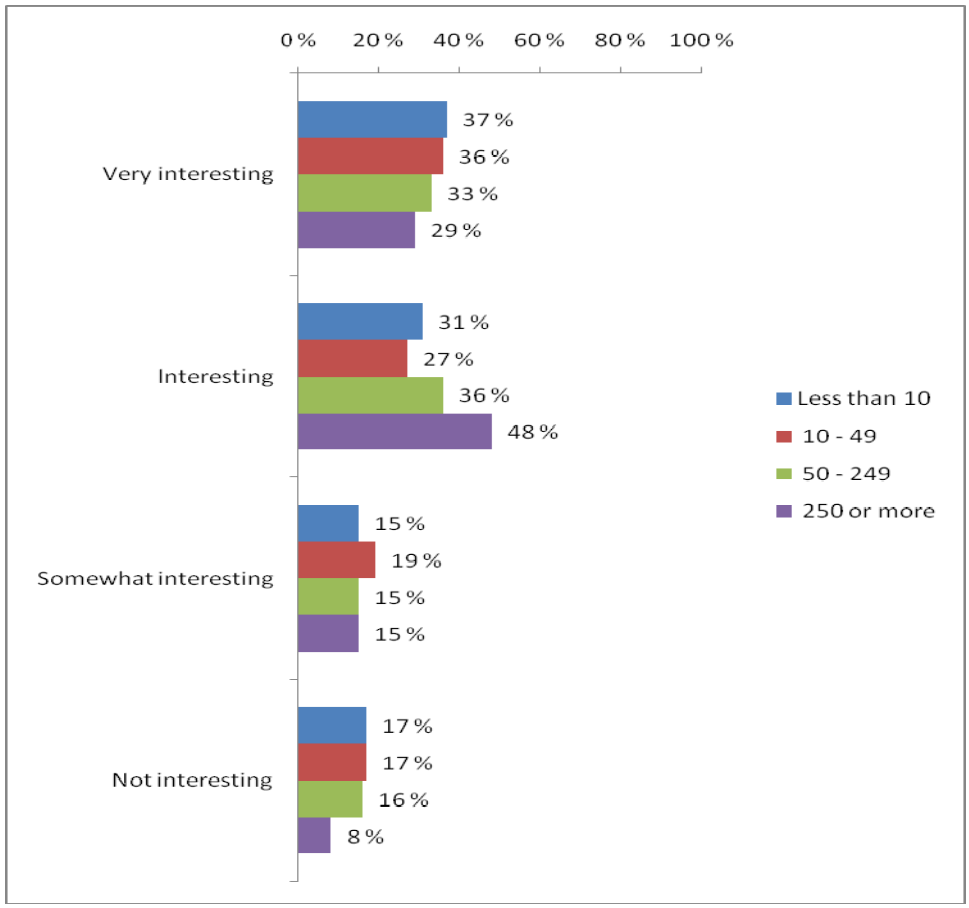


Finpro will widen its service offering by services based on foresight information. Which kind of trend related services your organization would regard interesting?

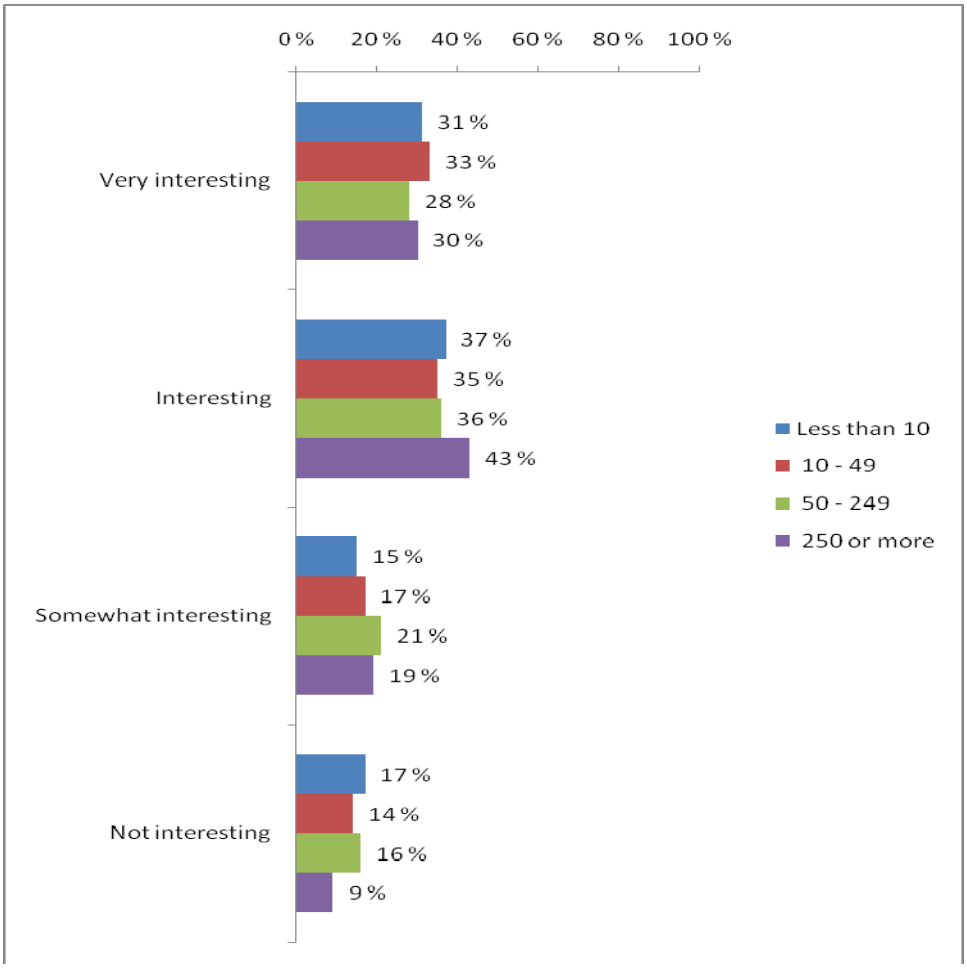
Fee-paying seminars of specific themes utilizing trend related information:



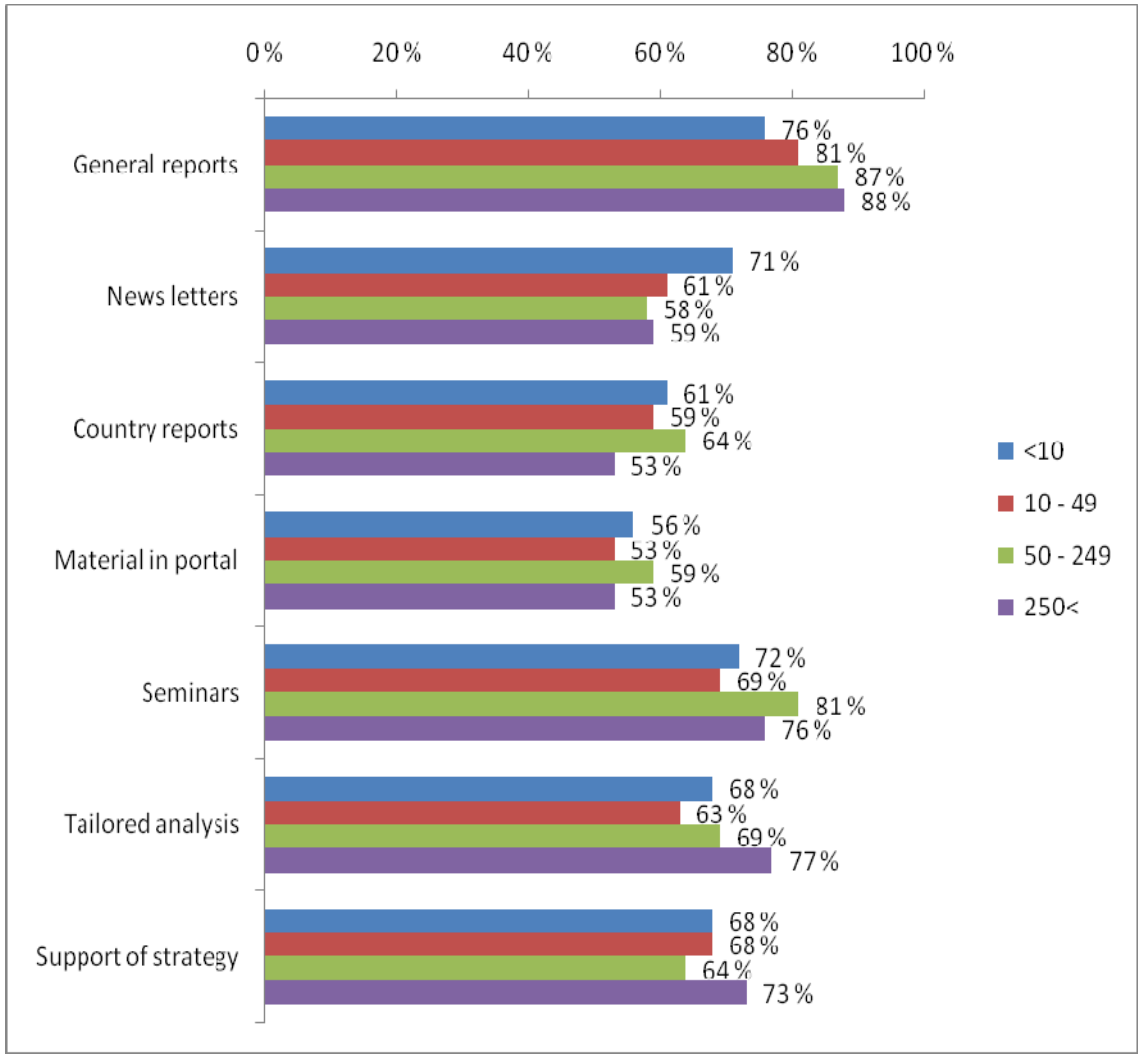
Trend related analysis specifically tailored to your organization:



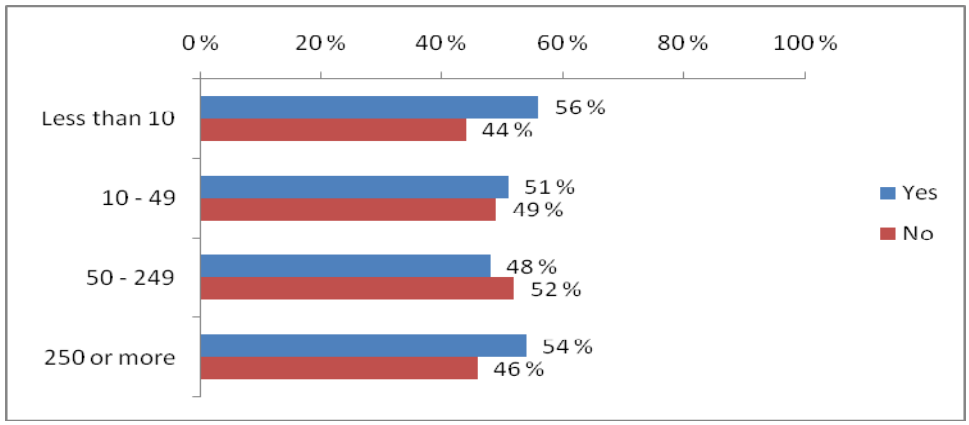
Supporting your organization´s strategic planning by utilizing analyzed trend information:



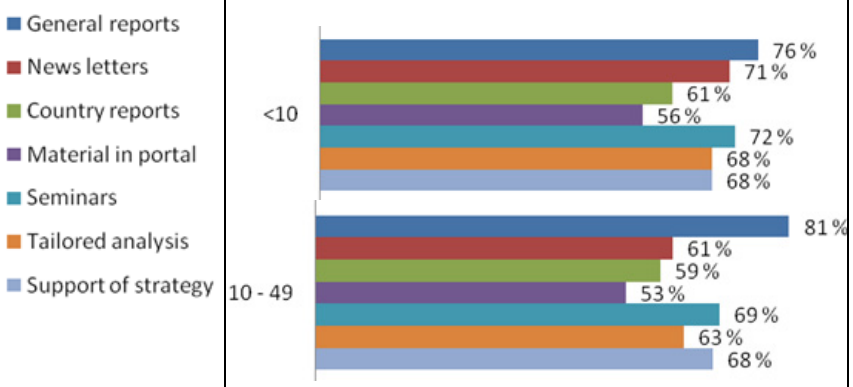
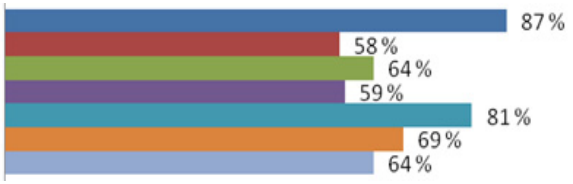
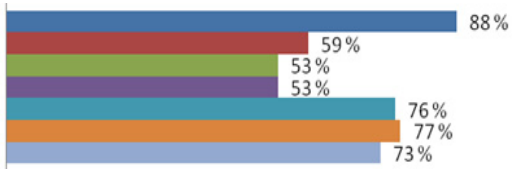
The rate of attraction by organization size:



Would you be interested in co-operation related to foresight services?



Appendix 5: NABC Analysis

	Small organizations (personnel 1- 49)	**Medium sized organizations** (personnel 50 - 249)	**Big organizations** (personnel 250 or more)
Need	**Questionnaire:** • General reports:76% (<10), 81% (10-49) • News letters: 71%, 61% • Country reports: 61%, 59% • Material in portal: 56%, 53% • Seminars: 72%, 69% • Tailored analysis: 68%, 63% • Support of strategy: 68%, 68% 	**Questionnaire:** • General reports: 87% • News letters: 58% • Country reports: 64% • Material in portal: 59% • Seminars: 81% • Tailored analysis: 69% • Support of strategy: 64% 	**Questionnaire:** • General reports: 88% • News letters: 59% • Country reports: 53% • Material in portal: 53% • Seminars: 76% • Tailored analysis: 77% • Support of strategy: 73% 
	Open comments: • Weak signals • Blog analysis • The wisdom of the crowds • Easy accessible trend information • Regional trends, trends around	**Open comments:** • Data mass filtered by certain criterion • Regionally comprehensive data • Industry specific trend information • Objective statistics of development	**Open comments:** • Weak signals • Raw data which own Business Intelligence unit can analyze • General reports made by experienced experts

	(outside) own industry • Information of different companies´ procedures and development • Combining multidisciplinary trends and forming radical scenarios based on that • Business market place portal • Specific industry information • Biannual review of the industry´s current situation and future prospects • Screened information service focused to own industry (not tailored, too expensive) • Market forecasts for own industry • Collaboration possibilities with FinNode/Finpro • Working with trend information together with other companies and partners • Small high class invitation seminars	of prices • Case information of companies that have used trend information in the guidance of their action	• Subscribed reports on certain themes • Own industry specific trends • European Union politics • Profound information of forecasted market discontinuities • Detailed reports on technologies • Public fund projects • Industry specific annually organized events for discussion of European and global trends • Integrating organizational knowledge with external information
Approach	-News letters, general and free information and conclusive analyses -Screening, not tailoring -Collaboration and networking possibilities - Small companies might need "full service" packages because of their scarce resources, not just material to support their own actions -Benefits of portal should be communicated -Foresight is not useful for start-up companies; small companies should be at least five years old and have established procedures	-General reports and seminars, own industry topics and data mass -Companies this size start to have own resources to do filtering of data and analyzing it by themselves -> focused information and support of the work -More specific information services to fulfil the needs of companies -Benefits for strategic work should be communicated	-General reports and tailored analysis, in general fee-paying services seen interesting - Specific information on different themes, data, and networking -Big companies have their own units to monitor the environment and for business intelligence, they act globally, and they more probably do scenarios and other foresight related actions by themselves (compared to smaller ones), also they might already have access to a large amount of information and media

			services -> Finpro´s foresight information has to be very special and offer true advantages to get their interest -Big companies have resources to buy tailored and very special services -> the benefits of different possibilities have to be clearly defined and communicated, and special services should be planned
Benefits	Small companies have scarce resources -> Finpro can offer its wide global network´s expertise, vision and deep understanding of the change phenomena and trends in business environment, so that companies can concentrate on their core actions. Taking an advantage of small size and agility, small companies can react and change quickly according to the results of foresight, so experimenting would be easy. Utilizing best practices from bigger companies and their networks, shared risks and synergy benefits. Small companies might truly need support of others.	-Added value from foresight -Networking and collaboration, partners -Though bigger in size still focused on certain industry/field -> Finpro offers multidisciplinary expertise and vision of the impacts of change	-Added value from foresight -Multidisciplinary view from Finpro experts -External support for monitoring and for strategy work, widens up the view of possibilities and ensures quick reaction to significant changes -Possibility to get very specific information if needed -Offers triggers from the environment which might not be noticed otherwise -Ideas from smaller companies and innovation partnerships
Competition	Internet is full of free sources. Finpro´s information services should be planned to be highly useful considering especially Finnish companies´ and industries´ needs. Seminars and workshops considering foresight should be taken to very practical level and offer true benefits to participants. Also organizing an easy way to deepen up the work together with others or with Finpro is important.	Benefits of foresight that Finpro offers should be clarified and communicated. The interest of companies has to bee awakened up. Member companies need to get involved. Many parties offer general reports and also organize seminars, so Finpro has to differentiate clearly with the topic and benefits in practice.	Many consulting companies offer strategy services for big companies, so Finpro should differentiate totally with its services. Especially important is to market different services efficiently and emphasize the uniqueness of Finpro´s foresight.

	Many actors are doing "foresight" with few signals and superficial approach but cheaper prices - it should be taken care of that small companies do not rely on those only because they do not afford to Finpro´s services. Different price levels for different service types.			
SMALL AND MEDIUM SIZED ORGANIZATIONS				
	FINPRO	**TEKES**	**15/30**	**FINLAND FUTURES RESEARCH CENTRE**
NEED	Mostly interested in free, easy accessible information services and possibilities for collaboration (e.g. seminars and workshops). **Open comments:** • Monitoring: Weak signals, blog analysis, the wisdom of the crowds, regionally comprehensive data, data mass filtered by certain criterion, screened information service focused to own industry (not tailored, too expensive) • General trend information: Easy accessible trend information, regional trends, trends around (outside) own industry, market forecasts for own industry, combining multidisciplinary trends and forming radical scenarios based on that, industry specific trend information, biannual review of the industry´s current situation and future prospects, objective statistics of development of prices • Collaboration possibilities: Collaboration with FinNode/Finpro, working with trend information together with other companies and partners, small high class invitation seminars, business market place portal • Company information: Information of different companies´ procedures and development, case information of companies that have used trend information in the guidance of their action			
APPROACH	White papers, articles and press releases, seminars, small client assignments, member services (web portal, workshops).	Research publications, general reports, and short signal sessions with clients. Serves more Centers of Expertise (SHOK) and thus groups of companies rather than	Focus on market research and the young and consumer trends. Some general trend reports, commented news, seminars, networking, help in creating foresight culture in a company. Information collected from Collaborative insight space	Academic approach. Main focus on research and general level issues. Projects, expert lectures, training programs, future study courses, publications, annual conference, study programs, seminars. Interactive forums, analyzing weak signals and speculating trends.

		individual companies.	community (CIS), and also by questionnaire research. Outcomes implemented individually by every case.	
BENEFIT	All industry specific information and general trend information, experienced analysts do sense-making. Global, fresh observations, signals collected worldwide. Finpro working as a facilitator/trigger/"hub" to start foresight work; as well possible to deepen up foresight work with Finpro or in collaboration with other companies.	Publications from many fields. Acts as a facilitator/trigger of foresight programs. Ability to combine different actors through Centers of Expertise (SHOK). Global view from FinNodes.	CIS offers connection to the wisdom of crowds: 10.000 European consumers, trend observers, and experts. Fresh ideas. Supports companies´ own trend related work.	The only academic futures research organization in Finland, credible research of many themes.

BIG ORGANIZATIONS				
	FINPRO	**TEKES**	**15/30**	**FINLAND FUTURES RESEARCH CENTRE**
NEED	Besides general trend information, big organizations are interested in more specific and detailed information services, and fee-paying services like tailored analysis and strategy support. **Open comments:** • General information: Weak signals, raw data which own Business Intelligence unit can analyze, general reports made by experienced experts, reports to subscribe on certain themes, own industry specific trends, • More specific information and services: European Union politics, profound information of forecasted market discontinuities, detailed reports on technologies, public			

	fund projects, industry specific annually organized events for discussion of European and global trends, integrating organizational knowledge with external information			
APPROACH	White papers, fresh pre-analyzed information, profound client assignments to strategy development work, seminars, and member services (web portal, workshops).	Research publications, general reports, and short signal sessions with clients. Awakening different companies to take part in national programs of different themes.	Trend reports, seminars, tailored research and analysis, information, tools and methods to collect signals, and refine signals and trends to concepts and commercial innovations, networking, help in creating foresight culture in company.	Focuses on research and general level issues, but also offers services and insight for organizations. Research publications, training programs and expert lectures, strategic vision and scenario projects. Customized information services and interpretation. Refines visionary knowledge regarding alternative futures, and challenges and possibilities in them. Interactive forums, analyzing weak signals and speculating trends. Formats to back up clients´ futures processes; tools to forecast future developments and control change processes.
BENEFIT	All industry information, wide expertise in many fields, bringing out general information which is noted significant. Global, fresh observations, big amount of signals collected worldwide. Possibility to tailor services for each organization´s needs, a lot of collaboration possibilities.	Acts as a facilitator of foresight programs and provides triggers for companies to start working by themselves. Provides collaboration possibilities, contributes also global networking. Global view from FinNodes.	Research and analysis tailored according to each company´s needs. Fresh ideas. Support and tools for companies´ own trend related work. Information collected from people which might not be easily accessed without.	Works as partner in organizations´ development projects, networking with other organizations also globally.